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THE PROPOSED RAILWAY FROM
NANKING TO PINGSIANG

REPORT OF SURVEYORS RECONNAISSANCE

CHINA'S RAILWAY ACCOUNT-
ANCY SYSTEM

WORK OF THE UNIFICATION COMMISSION

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RAILWAY DEVELOPMENT IN MID-CHINA

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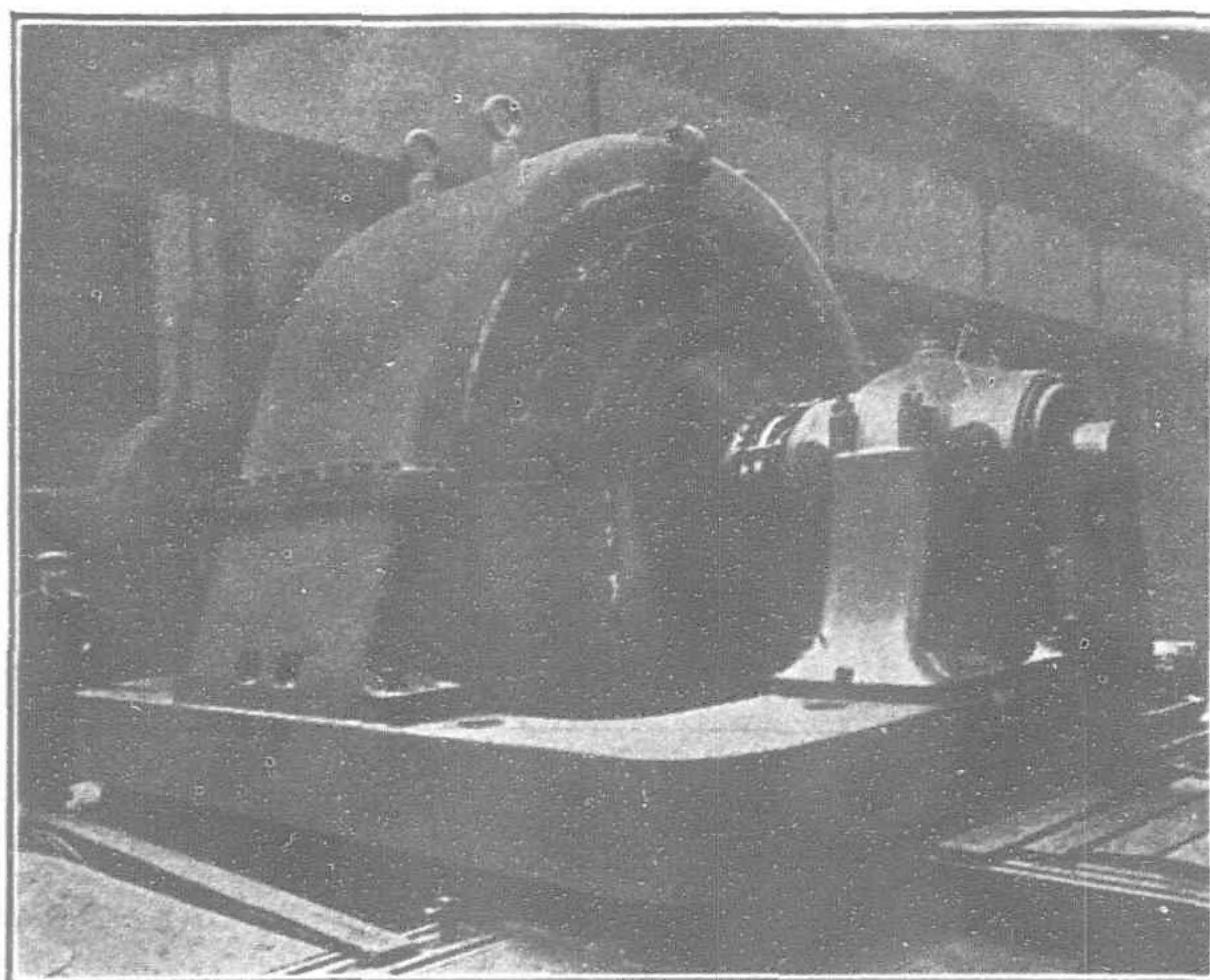
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THE FAR EASTERN REVIEW

COMMERCE :: ENGINEERING :: FINANCE

VOL. XI.

SHANGHAI AND MANILA, JULY, 1914

No. 2

THE PROPOSED RAILWAY FROM NANKING TO PINGSIANG

REPORT OF SURVEYOR'S RECONNAISSANCE

Mr. H. T. Foord, accompanied by Mr. S. B. Shen, and several student surveyors, recently completed a reconnaissance survey for a railway from Nanking to Pingsiang through Nanchang, the capital of Kiangsi Province.

The total length of the railway is estimated at 643 miles including the branch line from Loping to Kingtehchen and the estimated cost of construction and equipment is £7,608,925, or £11,833 per mile.

In setting about the survey of this line Mr. Foord kept very prominently in mind the probable future development of railway activity in the territory embraced by Chekiang, Anhui, Kiangsi and immediate provinces, and, in the excellent map which he drew for the information of the Ministry of Communications, he elaborated with considerable foresight what, in future, are likely to develop into trunk railways. Mr. Foord, as an engineer, felt it to be essential that the question of future trunk lines should be taken closely into consideration when discussing the construction of the line from Nanking to Pingsiang, providing that those parts of it which will form sections of the eventual trunk lines should be built with easy gradients and curves, and saving money by constructing in a cheaper way those parts which may for the sake of diction be termed light railways.

On his map, Mr. Foord indicates that the railway lines now running from Nanking to Shanghai and from Shanghai to Hangchow should be continued as a trunk line southwestwards to Yenchowfu and on through to Chuchowfu, across the provincial boundary of Chekiang into Kiangsi province and to Kwanghsinfu along the valley of the Kin-kiang river where it should connect with the proposed line from Nanking to Nanchang, about 50 miles to the east of Nanchang. The trunk line should then proceed from Nanchang to Juichowfu and direct westwards to Changsha. Two other trunk lines are also shown converging on Nanchang from the south, one from Foochow, another from Canton; while the line now in course of construction from Nanchang to Kiukiang would ultimately find continuation to the north of the Yangtze between and ultimately joining the Peking-Hankow and the Tientsin-Pukow lines.

Whether these railways will be built in the lifetime of the present generation cannot be said, but efficiency in Chinese railway schemes is only to be secured by such foresight as Mr. Foord displays. In view of the possibilities of trunk line extension, Mr. Foord is of the opinion that it would be wise to make the Nanking-Changsha line a light railway to within, say, 50 miles of Nanchang. From Nanchang to Changsha two routes are possible, one direct to Changsha, the other striking south to Fengcheng and Changshu, then following the Siukiang valley almost as far as Pingsiang, where it would join up with a line already in operation between Pingsiang and Chuchow, junctioning there with the trunk line from Wuchang to Canton. If the

latter route is taken Mr. Foord is of opinion that the first 60 miles from Nanchang should be built as portion of a trunk railway which is destined, ultimately, to connect with Canton, and then from a few miles south of Chuchow extend to Pingsiang as a light railway.

The Ministry of Communications would act wisely in giving close consideration to the map of South Central China which Mr. Foord has prepared. Mr. Foord deserves congratulation for emphasising the relations existing between present day and future construction of railways in the country.

After examining the route which he was engaged in reconnoitring, Mr. Foord came to the conclusion that it would be well to utilize the present short railway existing in Nanking, and known as the Nanking City Railway, as the starting point for the line from Nanking to Nanchang. Though that line is not at present in good order and has no junction with the Shanghai-Nanking Railway, the latter could be effected at very little expense while the former would be worth the money which may be necessary to place it in a state fit to carry heavy and through traffic.

Mr. Foord reports that the line divides itself naturally into three sections, the first of which from Nanking to Hweichowfu, a distance of about 205 miles, is for the most part through fairly easy country, with the exception of one divide shortly before reaching the latter town.

Up to Ningkwofu the route passes through rolling country or flat plain, the most important towns on the way being Molingkwan, Chaochienyu, Kaoshun and Singhuchong.

This part is thickly populated, and, although there is no important staple product with the exception of rice, there is a prospect of a fairly remunerative traffic. The rice trade centres mainly round Kaoshun, but the rice, which is of the second quality, is mostly taken by boats to Wusieh and Soochow, on the Shanghai-Nanking Railway.

Ningkwofu is a large and wealthy town, and a considerable passenger and goods traffic will certainly spring up between it and Nanking, as it will be only about four hours distant by railway. There is, however, competition by water, as a steam launch runs during the summer months to Wuhu, and there is also the Wuhu Railway to be considered, the distance from Ningkwofu to Wuhu being less than half the distance to Nanking. This line upon which construction was commenced some years ago is at present in abeyance, but it is certain, sooner or later, to be built.

An outcrop of coal exists to the east of Ningkwofu, but it appears to be of a poor quality, hard, and with very little flame, though it cannot be judged definitely from samples taken from the outcrop only.

There is an excellent site for a station just outside the east gate of the city, level ground which would not be required to be raised much and close to the business quarter and the river.

Beyond Ningkwofu there are two roads to Hweichowfu, following two nearly parallel valleys, about 40 miles apart, at their greatest divergence. The Western route is most used and more business passes that way.

The neighbourhood of this road itself is impracticable for the railway, which would have to follow the valley further to the right. The route through Ningkwosien is easier and holds out just as good prospects of traffic.

All this country is full of ruins indicating its former prosperity, but it is said to have never recovered from the Taiping Rebellion, when it was practically depopulated.

The line is easy up to the watershed which separates the rivers flowing into the Yangtse from those which flow through Chekiang. This point is reached about 23 miles South of Hweichowfu, and the valleys leading up to it on both sides are very narrow and tortuous.

The ridge could be crossed without a tunnel, or with a very short one, if a gradient of 1 in 50 were employed, but the engineer feels that such would be bad policy on this section of the line. He is of opinion that the maximum gradient should not be steeper than 1 in 100, in which case a tunnel about three quarters of a mile long would be required, but it is almost sure that this could be materially reduced by a very careful survey before fixing the actual location of the line.

The distance from Shanghai by rail, via Nanking, would be roughly 400 miles, and via Changchow would be not more than half the distance, besides which the line, being without any severe gradient or heavy works, would be much cheaper to run, and, consequently, freights could be fixed at a much lower figure.

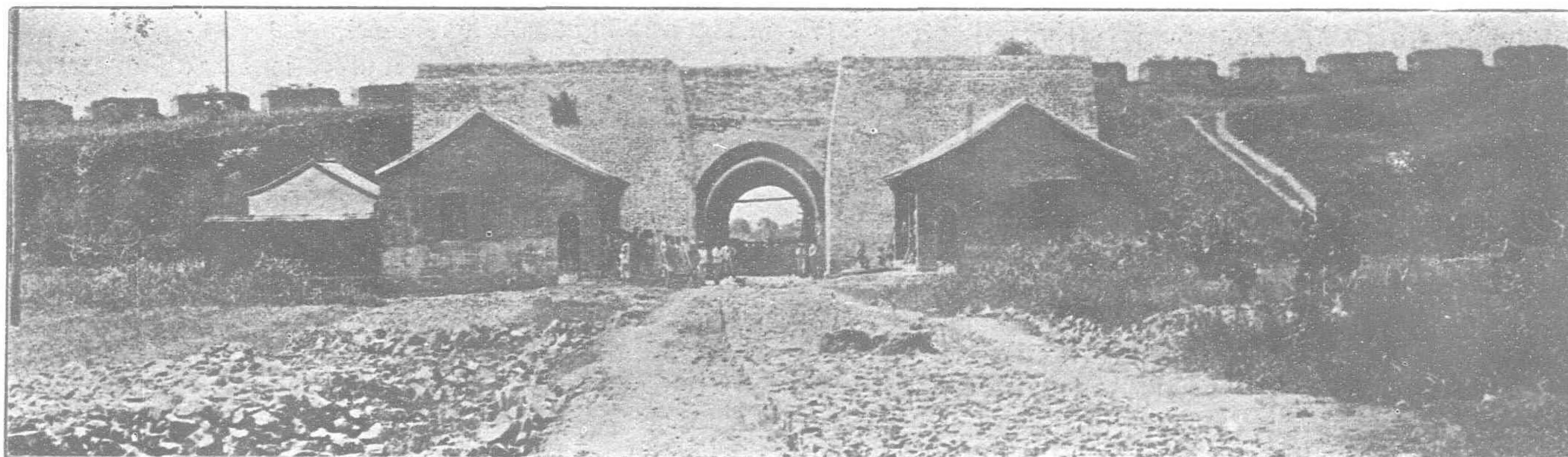
The line from Nanking to Hweichow would pay for itself by the local traffic which it would develop, and it would open up a stretch of country containing great possibilities, but it never is likely to form part of a trunk line carrying through traffic.

The station for Hweichow might be placed outside the West Gate of the town where is the only level ground, but this would cost a good deal to raise and protect, as two sides of it would be washed by the river when in flood.

The second section of the railway from Hweichow to Nanchang is for half the distance through a very mountainous country, the principal formation of which is a hard dark shale which makes it unlikely that any minerals will be discovered there. It is cut up into narrow, winding valleys by numerous streams, the hills rising in most cases from the water's edge without any flat ground between. The climate is warm and damp, and it is on the sides of these hills that tea is grown, particularly on the Southern and Western sides of the watershed.

It is essential that the railway should pass Tunki, one of the largest and busiest towns in the territory, and up to here and for some distance beyond, the country is level and easy, whichever route is finally adopted.

Mr. Foord, on his way westwards, first examined the most southerly valley, which leads up to a pass near Litakun, where



NANKING CITY RAILWAY.—Opening in the city wall for the railway.

After crossing the summit the line descends into a narrow valley which widens out into a flat plain for the last fifteen miles before Hweichow, and this is highly cultivated and thickly populated.

Coal outcrops at intervals all the way from Ningkwofu to Hweichow, and, near Linchi, a very fine quality of anthracite is found. Gold, silver, copper and iron are also said to exist in this district.

Hweichowfu is not a very important town from a business point of view, but its position at the head of the navigable river leading to Hangchow, and at the point of junction of several other streams which are navigable in the summer, marks it out as certain to be eventually the meeting place of several lines of railway when the country is more developed. It is perhaps best known as the headquarters of the Chinese ink industry, but this is a very small trade where freights are in question.

The whole of the trade of this district right up to the watershed which roughly divides Southern Anhui from Kiangsi, finds its way to Shanghai, via the Tsien Tang River and Hangchow, the latter place being only three days' distance by boat from Hweichowfu.

It is not at all an easy matter to divert the ancient course of trade and force it to take a new route, and this can only be done by offering facilities markedly superior to those of the old route.

Nanking, if it was ever a market for produce from the interior, has long ceased to be so, and Shanghai now is the shipping port for the valuable tea industry which centres at Tunki, about 16 miles south of Hweichow.

a tunnel about $2\frac{1}{4}$ miles in length is unavoidable. Then for many miles, as far as Wuyuan the valley is very narrow and difficult; after that the hills become lower, the shale formation giving place to red-stone, with room, in most places, to get the railway between the river and the foot of the hills.

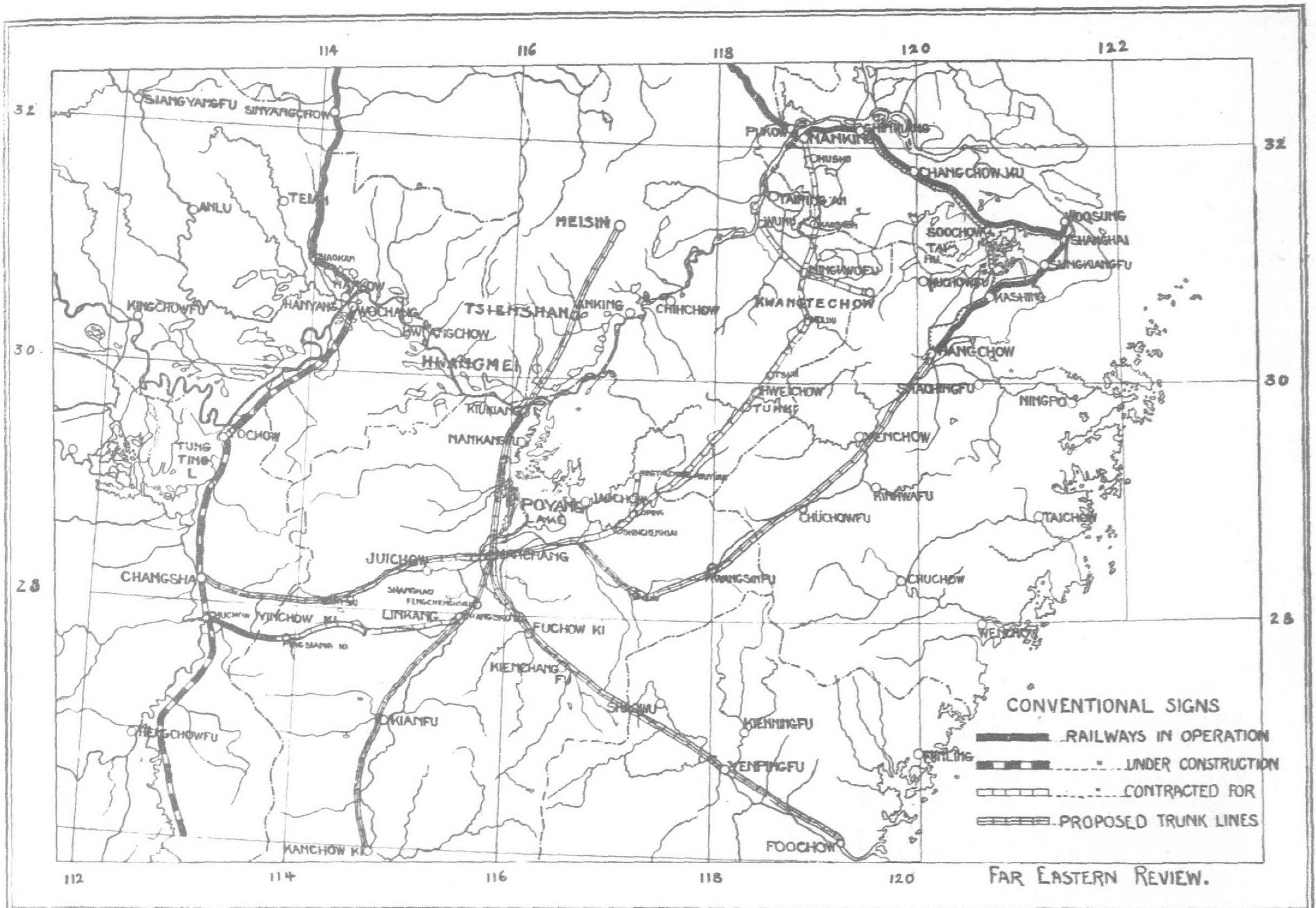
Between the summit and Wuyuan the line must be mostly cut out from the side of the hill; there would be many short tunnels or deep rock cuttings, where the bends of the river are too sharp for the minimum curve permissible on the railway. There must also be a large amount of stone retaining wall where the hills are too steep to cut out the full formation width of the railway, and protective works where it is liable to damage from the floods which rise with incredible rapidity in these narrow valleys.

From Wuyuan to Loping the line is fairly easy, and there are some broad side valleys where large quantities of rice are raised for supplying the tea growing districts which are too hilly for its cultivation.

From Loping the engineers went north to Kingtehchen and tried several passes through the watershed which runs north west from Litakun where it was first crossed.

The further north one goes the higher the mountains and the rougher the country generally and the easiest pass found, that near Tangkengkeou, requires the same gradient of 1 in 50, and a tunnel of almost identically the same length as that on the Loping route.

After careful consideration Mr. Foord came to the conclusion that the valley of the Loping River should be selected both because it is straighter and easier; also because the towns on this



The projected line from Nanking to Pingsiang is shown by the sign "contracted for." The trunk lines are shown by a similar sign with a third line in the centre. The trunk line shown passing south to Changshu Kianfu and Kanchow-ki will continue to Canton. The trunk line from Nanchang to Meisin would be continued north to join with the line from Peking.

route are much larger and more numerous, and far more ground is devoted to the cultivation of tea, the carriage of which must form the principal source of revenue of this part of the railway.

Another point of some importance is that the floods on the Kingteh River rise to a much greater height, which would, of course, add materially to the cost of the railway.

Kingtehchen is the chief place of manufacture of porcelain in China. Its wares find a market all over the country, and it should certainly be connected with Loping by a branch line, about 28 miles in length, through a very easy country. Loping, however, is in most ways the more important town of the two, being the distributing centre for a very large district, while Kingteh has very little business besides its one industry. This industry, however, is a considerable one, the yearly production being said to be worth \$5,000,000, and this should bring in a steady revenue to the railway.

Beyond Loping the route to Nanchang would be the same whichever way through the hills is finally selected for the railway up to this place, and the choice lies between a southerly line through rolling country and one near the Poyang Lake which, though more direct, is over ground which has a depth of flood water on it of about 20 feet. This also requires some very costly bridge work, and for these reasons cannot be recommended.

The crossing of the river at Loping is the first big bridge on the line and here fifteen 100-foot spans would be required, but the foundations are probably good, rock being found on the surface in many places in the river.

About 50 miles further on the big river Kinkiang is crossed near Tachitu. This will require at least 2,000 feet of waterway and a high bank leading up to it, as the valley is subject to very heavy floods.

This river-crossing is one of the most important points on the whole line as it is up this valley that the great trade route to

Chekiang runs, and it is here that the railway may hope to pick up a good deal of traffic which at present goes on down the river to Poyang.

For the next 30 miles the line passes through rolling country, and then crosses a stretch of 20 miles of ground from 10 to 20 feet below flood level. This country is all banded and very productive, but the higher bank which must be built to keep the line above the water in case of the bursting of the dyke, will be costly.

The last 14 miles into Nanchang is over a flat, elevated plain, very thickly populated and with an immense traffic along the road leading to the city.

At present Nanchang does practically no business with the country lying to the east, as it is easier to take things by water to Jaochow and thence to Kiukiang, but as navigation is already difficult and the Poyang Lake is rapidly silting up, there is no doubt that the railway will be able to get most of the business as soon as there is a through rate to Kiukiang.

It is not possible for this railway to pass close to Jaochow, but as this is a large and important town the question of a branch line might be considered later.

The principal production of the country between Loping and Nanchang is rice, but at the former town the coal measures are again encountered and a fair quality of bituminous coal is mined, though for lack of transport only a very small quantity can be at present marketed.

Nanchang is a very large and busy city, and is destined by its situation to be one of the greatest railway centres in China, but as it is distant about ninety miles from Kiukiang, the nearest deep water port, it is evident that the railway between these two places practically controls the traffic of all the other railways which converge on Nanchang.

The position of the station at Nanchang is rather a problem as it must be placed as near as possible to the town and also in a

place where convenient junction can be made with the other lines which will sooner or later radiate from this city.

The ground on the west side of the river would be in some respects the most suitable, but it is low and has the disadvantage of being the other side of the river from the city. On the whole the side near the East Gate would be the best. This is high and fairly clear of buildings and sufficient land could be obtained for the large workshops which would be required here.

This means that the trains from Nanking would come into the station from the South East and back out again when proceeding to the South or West but would go straight on towards the Kiukiang Railway. The trains must in any case be reversed for one direction and this seems on the whole the best arrangement.

It will probably be necessary to build a short branch line to the river, south of the city, and to put in sidings for construction purposes and later on for goods traffic.

From Nanchang to Pingsiang there are two routes; one through Changshu and the other through Juichowfu. There is probably not much to choose between them as far as cost is concerned, and the length of both would be very nearly the same, but the former is recommended because Changshu is a very important business town and because a direct line from Nanchang to Changsha would traverse most of the second route.

Also, the first sixty miles of the first route, as far as Changshu, will form part of the great trunk line to Canton, and the first thirty miles of a similar line to Fukien.

latter would follow is equally productive with just as large and important towns and it is easier from an engineering point of view. The two lines are far enough apart not to interfere with each other in the least, and both would bring traffic to the eastward continuation of the railway after their junction with it.

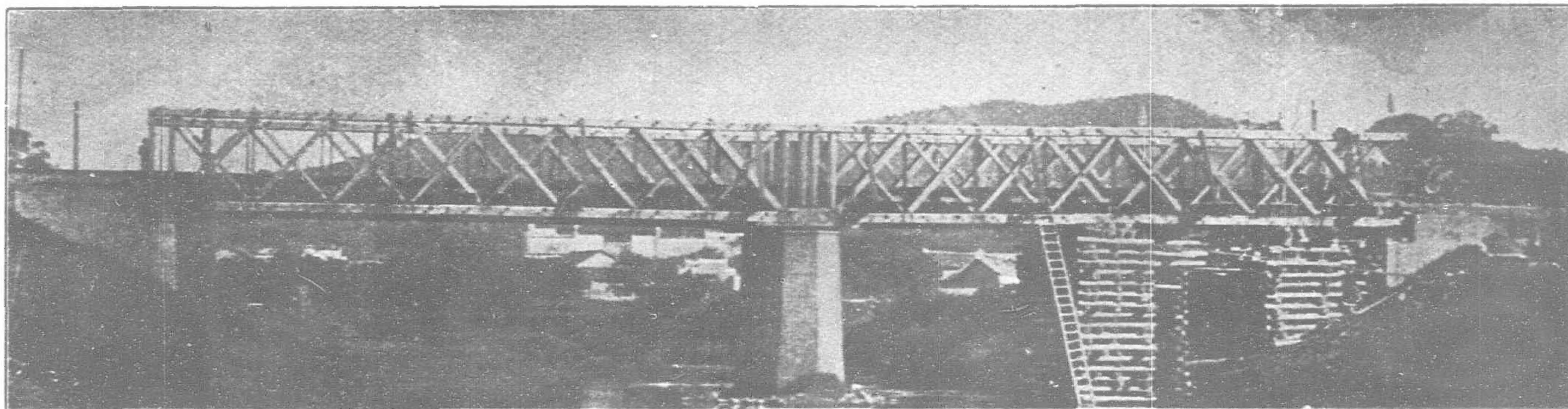
Coal is found nearly all the way from Nanchang to Pingsiang, and there is an almost continuous outcrop on the north side of the road for the last eighty miles of the way.

The Nganyuen mine is the only one which has been properly opened up and equipped with modern machinery and it is expected that the output of this will come up to 3,000 tons a day by the end of this year. All or nearly all of this amount is consumed by the Hanyang Steel Company, which is also the owner of the mine.

On the east side of the hill at Shanpu there are porcelain factories, and iron and other mines exist no great distance away. There is no doubt that Pingsiang is capable of development into a great industrial centre.

About one third of this railway runs through a mountainous district where Mr. Foord does not think a gradient of 1 in 50 can be avoided, so that the cost of working must also be high and it is evident that the freight charges cannot be sufficiently lowered to attract any long distance through traffic.

The country through which the line passes is rich and worth developing for its own sake but for the purpose of a great east and west trunk line another route must be selected. This is fortunately to be found a little to the south of the



PINGSIANG-CHUCHOW RAILWAY.—Wooden truss bridge near Pingsiang City.

The first thirty miles from Nanchang are on high and good ground, but the next thirty are in the valley of the Kan River and an average bank of about fifteen feet high would be necessary.

A long bridge is required for the crossing of this river near Changshu, about 3,000 feet for the main river and perhaps another 1,000 feet in small spans to carry the flood water, but it may be possible to find a place not too much out of the line where the banks are higher and a shorter bridge would suffice.

As soon, however, as the line turns westward up the Linkiang valley the land is higher and in very few places is the ground flooded at all.

From here up to the range of hills which separates the streams running east from those running west, the line is easy and the country mostly productive and well populated, the town of Yuanchowfu being large and comparable with Ningkwofu, and there is a very heavy traffic on the road between it and Pingsiang.

The hills mentioned form a considerable obstacle to the railway, but by employing a gradient of 1 in 50 a tunnel could probably be avoided altogether, and there is a possibility that, by joining the existing railway for a few miles further down, a quite easy route through the hills may be found.

It is a question of policy rather than of engineering to decide whether to spend the money which would be required to make this railway a first class line, or to construct it in a manner suitable for local traffic and to build the trunk line direct from Nanchang to Changsha. The route which this

present line and runs up the valley of the Kin river and down that of the Tsientang connecting with the Chekiang Railway at Hangchow.

This route presents no engineering difficulties, the watershed being low and easily crossed, while there is at the present time a very large traffic carried on by water, although the rivers are only really navigable in the summer, and there are said to be 900 mules engaged in the business of transporting the goods over the short distance which separates one river from the other.

Referring to the line from Nanchang to Pingsiang, Mr. Foord says that the railway from the mines to Chuchow was built solely for the transport of coal. It has been very badly located and has been built in such a manner that it would be next to impossible to convert it into a line suitable for through traffic. It has already nearly as much traffic as it can carry on a single line and the best policy would be not to spend much money on reconstructing it, but merely to put it into a condition of safety and build another line direct from Nanchang to Changsha for through traffic. Both lines would pay for themselves by their local traffic, but for through traffic the line via Pingsiang would be more than half as long as the direct line.

Changsha is a very important place and with the long line to the west which has lately been put in hand, it is certainly worth a direct connection with Nanchang.

Mr. Foord emphasises that he does not wish to imply that the line to Pingsiang is not well worth building, as nearly one third of it forms part of the most important main line to Canton. This latter, which would open up the immense coal deposits and

other riches of Kanchow, is far the easiest route between Canton and the north, beyond all comparison better than the Canton-Hankow line, and with an extension north of the Yangtse, joining either the Tientsin-Pukow Railway or the Peking-Hankow Railway, would form the quickest and easiest connection between Peking and Canton.

As the mountainous country traversed by the projected railway is cut up into very numerous valleys, many of which are not shown on the maps and have no roads up to them, it is quite possible that a prolonged examination of the country may result in the discovery of a much better way through the main divides. This is so important that no amount of time spent on survey work would be wasted. What is really wanted is an accurate map taking in a fairly large extent of the country, and, to make this, 5 or 6 small parties of engineers, mainly Chinese, should be sent out to do traverse work before even a preliminary attempt at location is made. Much of the survey would be very tedious and difficult as the hillsides are densely clothed with vegetation through which lines must be cut before any work with an instrument can be done, and in this respect this district differs from most other parts of China in which railways have hitherto been built.

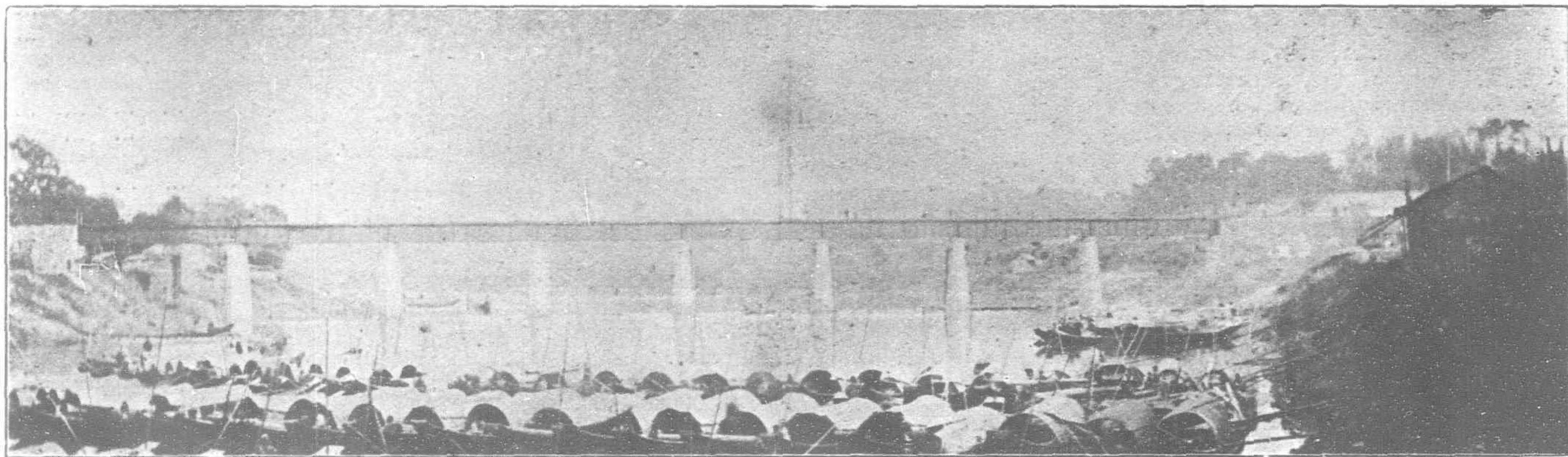
During construction the difficulties of transport will be seriously felt, especially for getting up heavy machinery and explosives to the sites of tunnels, but, the foundations being good in the mountainous parts, bridges could mostly be built of masonry and material obtainable in the vicinity instead of field spans which could not be carried up country until the rails are laid.

Chu Chih-chien, Minister of Communications; Mr. Chow Tze-chi, Minister of Finance, and Mr. S. F. Mayers, representing the British and Chinese Corporation.

Under the Agreement the Chinese Government authorises the issue of a five per cent. gold loan for £8,000,000 to provide capital for the resumption by the Chinese Government of the Anhui Provincial Railway Company's work and property in the neighborhood of Wuhu; the construction of a Government line of railway from Nanking to Nanchang, and with connection to Wuhu and Kuangtechou, and from Nanchang to Pingsiang, to connect with the existing Government railway from Pingsiang, to Chuchow; and for the incorporation of the Chuchow-Pingsiang railway as an integral part of the railway to be constructed under the agreement from Nanking to Pingsiang. The period of construction is estimated at four years from the actual beginning of operations, construction not to be delayed more than six months from the date of the signature of the agreement.

It is provided that a branch line on a point on the main line at or near Hweichowfu, passing through Yuchien to Hangchow and a connecting line from the Nanchang-Pingsiang section to a point on the Hupeh section of the Hukuang railway, if found by the Chinese Government to be profitable or necessary later on, shall be built by the Chinese Government with funds at their disposal from Chinese sources and if foreign capital is required preference will be given to the agents, the length of such lines to be determined by the Chinese Government.

The term of the loan is to be forty-five years, amortisation to begin upon the expiry of the fifteenth year, the loan being guaranteed by the Central Government and being secured by



PINGSIANG-CHUCHOW RAILWAY.—Eight 60 ft. span plate girder bridge over the Lukiang near Liling City.

One thing struck Mr. Foord forcibly while exploring the hill country from valleys across the intervening ridges and that is that no railway can hope to develop more than a very narrow strip of country until practicable roads are constructed to connect the towns on each side of the line with the railway, and no effort should be spared to induce the inhabitants to take this much needed reform in hand.

The loan agreement signed in connection with this railway between the Chinese Government and the British and Chinese Corporation is for £8,000,000 at five per cent interest, the security being the line itself. Provision is made that the Corporation shall have the preference of supplying capital for any railway that might be built between Hweichowfu and Hangchow, or from any point on the Nanchang-Pingsiang railway to the Hukuang railway. The agreement provides for the appointment of a British Engineer-in-chief, and a British accountant. The British and Chinese Corporation receives the usual five per cent. purchasing commission.

Mr. T. C. Sun has been appointed Chinese Managing-Director, and Mr. Frank Groves, late Engineer-in-Chief of the Canton section of the Canton-Kowloon railway, has been made Engineer-in-Chief of the new line.

Conditions of the Agreement

The Agreement in connection with this railway, consists of twenty-four articles and was signed on March 31, 1914 by Mr.

mortgage of the railway and the revenues of all descriptions derivable therefrom. The loan will be issued to the public in two or more series of bonds, the first issue to be made to an amount not exceeding £4,000,000, sterling, as soon as possible after the signature of the Agreement. The price of the bonds to the Chinese Government is to be the actual price of issue to the public in London less flotation charges of four points retainable by the Corporation. The second and subsequent series are to be issued in time to permit of uninterrupted continuance of the work of construction, the proceeds of the loan to be paid to the credit of a Nanking-Hunan Railway Account with the Hongkong and Shanghai Banking Corporation in London, interest at the rate of three per cent. to be granted on the credit balance kept in London, and the usual rate on sums transferred to China.

The accounts of the railway will be kept in Chinese and English in accordance with accepted modern methods under the direction of a duly qualified British Accountant.

The construction and control of the railway are to be vested entirely in the Chinese Government, the Engineer-in-Chief to be a qualified British Engineer to be appointed by the Ministry of Communications. He will take orders from the Ministry of Communications or the Managing-Director of the line, and his services are to be retained during the currency of the loan.

The Corporation will act as Agents for the Railway Administration during construction for the purchase of all materials, plant, and goods required to be imported from abroad. For all important purchases of such materials tenders are to be

called for by the Director-General of Railways of the Ministry of Communications, or the Managing-Director or his duly appointed representative, in the case of all tenders indents and orders for the importation of goods and material from abroad; the Agents are to purchase the material required on the terms most advantageous to the railway, and charge the original net cost of the same plus a commission of five per cent. In return for the payment of this commission the Agents are prepared to superintend the purchase of all foreign materials required for the construction and equipment of the railway, which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials are to be of good and satisfactory quality and that the Railway Administration shall have the right to

reject on arrival in China materials which do not come up to specifications. At equal rates and qualities goods of British manufacture shall be given preference over other goods of foreign origin. With a view to the encouragement of Chinese industries preference will be given at equal price and qualities, over British or other foreign goods, to Chinese materials and goods manufactured in China. No commission will be paid to the Agents upon purchases of such materials and goods. After the completion of construction of the railway the agents will be given the preference of such agency business during the currency of the loan for the supply of foreign materials as the railway administration may require on terms to be mutually agreed upon.

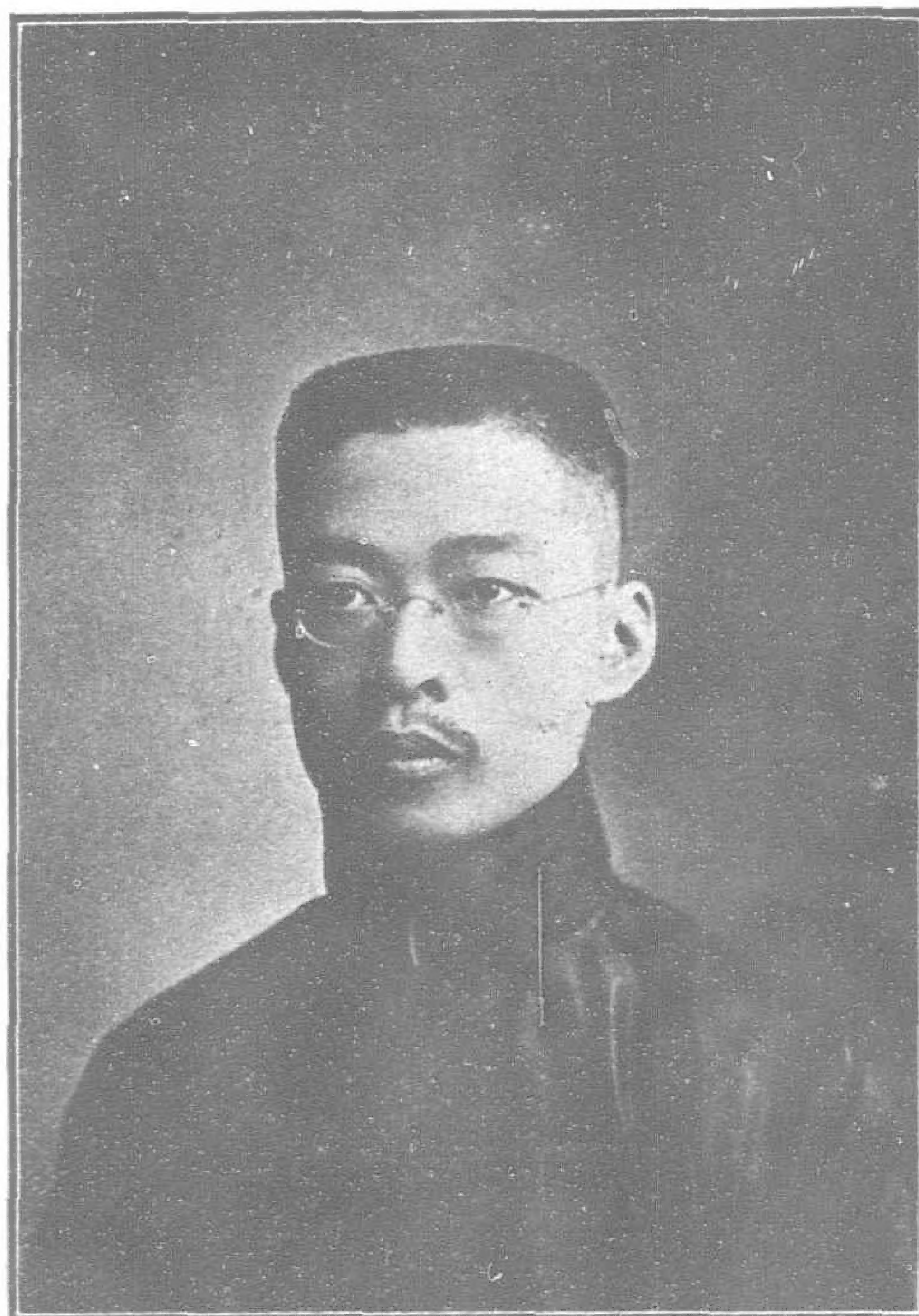
THE EASTERN PIONEER COMPANY.

In the last issue of the FAR EASTERN REVIEW we published the history of what is known as the Pritchard Morgan Concession for the working of the mineral deposits of Szechuan Province. We now glean from the London *Financial News* something of the financial state of the Eastern Pioneer Company which was formed in 1899 to take up and work the Concession secured by Mr. Pritchard Morgan.

The Eastern Pioneer Co., Ltd., was registered in October, 1899, with a nominal capital of £300,000 in £1 shares, to adopt an agreement with Wm. Pritchard Morgan, M.P., and to carry on business as land, estate, and mine owners, explorers, prospectors, miners, metallurgists, quarrymen, timber merchants, and mill owners. In January, 1902, a circular (signed "Geo. T. Broadbridge, secretary") was sent to shareholders inviting subscriptions for 25,000 shares, forming a portion of 49,993 unissued shares. The circular said: "At the formation of the company provision was made for a working capital of £100,000, and 50,000 of the fully-paid shares allotted to the original concessionaires were set apart as a bonus for the provision of that capital. Out of the 49,993 shares in reserve the directors have resolved to issue 25,000, and, with the co-operation of the vendor, 25,000 fully-paid concessionaire shares will be available as a bonus to the subscribers of this £25,000, in the proportion of one bonus share for each share subscribed for. The provision of this capital and the very large interest which the company holds in the British and Korean Corporation, Ltd., which acquired the Korean Concession, should place the company in a thoroughly sound and strong position."

In February, 1907, a prospectus was filed, offering 300 first mortgage debentures of £100 each, repayable on December 31st, 1908, carrying interest at 8 p.c. p.a. The debentures were to be secured by (1) a first mortgage over the Morgan Concession, province of Szechuan, (2) deposit with trustees of 200,000 ordinary shares of the British and Korean Corporation, Ltd., (3) a floating charge on the undertaking and general assets. The prospectus stated that nearly one-half interest in the British and Korean Corporation was held by Messrs. Jardine, Matheson & Co. and their friends, and that the mines were under their management.

There has been some laxity in the filing of the company's returns, many of these being filed from three to eleven months after the statutory date, and the enactment that a company must hold a general meeting once at least in every year appears to have been honoured more in the breach than in the observance. The last annual summary was made up to December, 31st, 1913 (no meeting having been held during the year), and filed on March 14th, 1914. It showed 250,007 shares issued, of which 50,007 had been fully paid up in cash and 200,000 were credited as fully paid. There were no debentures or other charges requiring registration. There is nothing on the file to show that any of the debentures offered in 1907 were ever issued, and the balance-sheet to June 30th, 1908 (prior to which no company



Mr. T. C. Sun, Managing Director of the Nanking-Hunan line.

was required to file a balance-sheet), did not mention any debentures among the liabilities. The directors at the end of 1913 were: Colonel Weatherall, C.B., W. Pritchard Morgan, J. W. Mayer, A. Diehl, and John Crisp. The principal shareholders at the same date were:—



Mr. S. B. Shen, who will be in charge of the Chinese Survey parties of the Nanking-Hunan line under Mr. Frank Grove.

	Shares.
Executors of E. M. Bainbridge, 146, Lauderdale Mansions, W.	1,250
Sir Charles Friswell, 1, Albany-street, N. W.	1,000

Sir William Ingram, Bart	1,271
Timothy M. Healy, K.C., M.P.	1,500
William Keswick and John M. MacDonald, 3, Lombard-street, E.C.	80,000
Lord Merthyr, Aberdare	5,000
Executors of Sir John Blundell Maple... ..	4,500
C. Baker, Brussels	1,500
Banque d'Outremer, Brussels... ..	1,000
J. H. Bush, Shanghai	1,000
Compagnie Internationale d'Orient, Brussels	1,000
Crédit Générale Liégeois, Brussels	1,500
Reginald Carr, Stock Exchange, E.C.	1,900
J. W. Circuit and C. H. Passingham, 72, Lombard-street, E.C.	2,000
Chevalier Raphael De Bauer Brussels... ..	1,920
G. and M. H. De Lavelege, Brussels	1,500
F. E. Dixon, 81, Gracechurch-street E.C.	2,400
E. Empain, Brussels	1,500
G. A. Edell, 4, King-street, E.C.	1,000
J. F. Edell, 4, King-street, E.C.	2,500
F. Gordon, 1, Devonshire-square, E.C.	1,000
E. A., K. R., and W. R. Hay, 20, Abchurch-lane, E.C.	1,000
L. Lambert, Brussels... ..	1,500
Samuel Lazarus, 3, Drapers'-gardens, E.C.	3,500
J. W. Mayer, Denecourt, Percy-road, Boscombe	1,330
William P. Morgan, 1, Queen Victoria-street, E.C.	2,191
J. V. B. Murdoch, 140, Princes-street, Edinburgh... ..	3,700
Miss G. P. Morgan, Cotswold. Staines	4,667
A. E. Messer, 14, Old Jewry Chambers, E.C.	3,050
N. W. Mellor, 7, Great Winchester-street, E.C.	4,500
Executors of F. Pavy, Salisbury House, E.C.	2,834
Countess Augusta A Piper, Skane, Sweden	1,000
F. Phillipson, Brussels	1,000
W. A. Paynter, Silvermead, Knowlgreen, Staines	5,300
G. E. Philcox, Stock Exchange, E.C.	1,000
C. H. Regnart, 144, Tottenham-court-road, W.C.	1,350
Railway Share and Trust Agency Co.	20,000
G. A. C. Shenley, Warsash, Southampton	1,000
W. B. Smith, c/o J. W. Russell, M.S., 72, Newhall-street, B'ham	1,000
H. T. Tatham, 3, Finch-lane, E.C.	1,000
S. Wilner, Brussels	5,800
Colonel H. B. Weatherall, Manor House, Staines... ..	1,000
B. E. Yorke, 19, Throgmorton-street, E.C.	1,000

As a copy of the balance-sheet to June, 1908, has been filed with every annual return from 1908 to 1913, it would appear that no later accounts have been prepared. At this date there was £4,623 due to creditors, and cash at bank amounted to £20. The auditors remarked (*inter alia*): "The price originally paid for the assets acquired by the company and the expenditure since made by the company are included in full in the balance-sheet. The present value to the company of the expenditure in connection with Korea is of little or no value, and the value of the assets in China is very uncertain. The British and Korean Corporation, Ltd., is in liquidation, and we are informed that the preference shares, which are included in the balance-sheet at cost, are of no value."

THE FAR EASTERN REVIEW

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CHINA'S RAILWAY ACCOUNTING DEPARTMENT

The appointment of Dr. C. C. Wang as head of the newly created Accountant Department of the Ministry of Communications in Peking is one of the wisest that the new Minister has as yet made. To Dr. Wang must go the initial credit for the excellent work that has so far been done by the Commission for the Unification of Railway Accounts and Statistics. He, in fact, was the initiator of the movement. His recognition of the tremendous importance of an early unification of accounts, his unflagging energy, and his enthusiasm, combined with his ability and knowledge of his subject enabled him to overcome early opposition and convince the then Minister and Director-General of Railways of the urgent need for such a work; and it is highly creditable to those two gentlemen that they fell in with Dr. Wang's ideas and created the Commission. In another column we record the first fruits of that organization, and mention the lines of progress that it has so far made. It is now nearing its close, and by next month it should have thrashed out and decided upon the many questions which it was called upon to settle. The onus of now making the results of the labors of the Commission profitable to the country is upon the shoulders of the Government, and that the Government has now named Dr. Wang as the head of the department which will be the executive to put the proposals of the Commission into effect, seems to indicate that the high authorities are in earnest in an endeavor to give to the railways the regulated accounting system that they have so long needed. What is now required is, of course, the granting of ample powers and complete authority to Dr. Wang to apply the rules and have proper use made of the forms which the Commission has devised on all the railways in the country. Unless this is done the labors of the Commission will have been in vain. China has, however, so long labored under the stigma of make-believe at reform, has bleached the road of her history with the skeletons of so many fruitless Commissions, has crammed so many cobwebbed pigeon holes with valuable reports, that it is sincerely to be hoped that henceforth the fullest and most comprehensive use may be made of all such carefully prepared reforms as those emanating from the deliberations of the Commission for the Unification of Railway Accounts and Statistics.

THE NEW PHILIPPINES BILL

With the publication of the text of the new Philippines Bill—more popularly known as the Jones Bill—the situation in the Islands may tend to become clarified. The Bill, contrary to anticipation, does not fix any date for the withdrawal of the United States from the Philippines. The withdrawal will take place "as soon as a stable government can be maintained by the Filipinos." As far as this is concerned it is merely a reiteration of a determination announced practically as soon as the sovereignty of the islands passed to the United States.

While the date upon which the Filipinos will attain independence is left unsettled, immensely larger powers are given to the native inhabitants of the Islands. An elective Filipino Assembly and Senate has practically full powers of legislation. The Governor-General is to have the power of veto, but, if vetoed bills are repassed by the legislature with a two-thirds majority, they have to be sent to the President of the United States for approval or disapproval. The franchise is greatly widened by the Bill. As far as can be gathered from the Filipino press the Bill does not meet with entire favor. Stress is laid upon the fact that the day of independence is apparently as far off as ever. On the other hand Governor-General Harrison regards the Bill as a noteworthy step forward. He has given the following expression to his views:—

"The new Jones bill is in direct line with President Wilson's policy as announced upon my arrival in Manila last October. He instructed me then to say 'Every step we take will be taken with a view to the ultimate independence of the islands and as a preparation for that independence.' He took one step then in the appointment of a majority of Filipinos on the commission. The great success of that step justifies another step now.

"No better preparation for independence could be made than that provided by the new Jones bill. Substantially autonomous government is given. Certain checks and balances are prescribed which are regarded as essential by the United States. Meanwhile, the Filipinos are given practical management of their internal affairs.

"Most important is the declaration that the United States purposes to recognize the independence of the Philippines as soon as a stable government can be established therein. All those who believe in the capacity of the Filipinos for independence should be confident of the result. Great progress has been made this year—still more may be made under the new legislation. If success crowns the new undertaking, opponents of Philippine self-government must rapidly diminish, and their arguments will have been refuted.

"The resident commissioners in Washington have worked for a fixed date for independence. That proved impossible at the present time. President Wilson has furnished most excellent reasons for preferring the new Jones bill. The Filipino people should support this legislation. In that way the patriotic Filipino can at this juncture best serve his native land; in that way independence may be achieved with self-respect and the good will of all.

"When the bill becomes a law, I feel confident that all Americans here will unite in supporting the Philippine policy of our country; cheerfully and unselfishly they will aid in the future working of this new form of government."

THE SHASI-SHINGYIFU RAILWAY.

On Saturday, July 25, a final agreement was signed between the Ministry of Posts and Communications and Messrs. Pauling and Company, Limited, of London for the construction of a railway starting from a point on the Yangtsze River opposite the city and port of Shasi, in the Province of Hupeh, through Lichow, Changteh, Shenchow, Yuanchow, Chenyuan, Kweiyang, Anshunfu to Shingyifu, in the south-western corner of the Province of Kweichow, with a Branch from Changteh to the city of Changsha, the capital of the Province of Hunan. The loan is for £10,000,000 for forty years at five per cent. interest. The railway is to be built by contract, a firm of British consulting engineers acting with the Chinese managing director in drawing plans and supervising the work. No section is to be started without specifications and costs approved by the Chinese and the price of the work will consequently be kept down as low as is consistent with efficiency. A firm of British accountants will be engaged to deal with the accounts of the loan, which is secured on the line and is also guaranteed by the Government.

We have already made descriptive reference to this proposal in the FAR EASTERN REVIEW of February 1913. The line will follow the old established trade route as far as possible, linking together the chain of cities, towns and villages in the fertile valley of the Yuan River and those located along the highway stretching across the breadth of Kweichow, following the identical route suggested by Consul Bourne in his report on the trade of Central and Southern China in 1898, as being the best and most likely to pay.

Since time immemorial communication between central China and the southwestern provinces has followed the only feasible and practical natural road. Trade and travel have been confined to what is known as the great Southwestern Trade Route, one of the important main arteries of the old Empire. From Hankow across the Tungting Lake and up the turbulent Yuan River into western Hunan, over rapids and shoals, the small junks and sampans are still sailed or laboriously hauled or poled as far as the head of navigation at Chenyuan in the province of Kweichow. From this point all goods are transferred to the backs of coolies or mules and so carried the three hundred or more miles across Kweichow, ever upwards to the higher levels of the Yunnan plateau, where the loads are again transferred to carts. The entire province of Kweichow, the eastern part of Yunnan and parts of Szechuan have been dependent for centuries on these slow, uncertain and expensive methods of transportation, with the natural consequence that their development has been retarded, trade reduced to a minimum, and the surplus population of the other provinces have overflowed into more accessible regions. Nowhere in China is

the need for a railway greater than in Kweichow, and nowhere does it promise more profitable returns.

By virtue of its commanding position Hankow will be the great future railway centre of China, from where the main trunk lines will radiate in all directions. Insurmountable natural obstacles, however, make it impossible for the south-western trunk line to start directly from Hankow. The presence of the Tungting Lake, an immense natural reservoir for the flood waters of the Yangtsze River, and the maze of rivers, creeks, canals, and smaller bodies of water in the immediate country to the southwest of Hankow, compel a deviation from the straight line. The Chinese Government has, therefore, wisely selected the nearest commercial centres to the northwest and southeast of the lake district as the termini of the proposed southwestern trunk line. At Shasi, the nominal terminus of the line, connection will be made in future with the German section of the Hukuang Railway (now under construction) thus providing a rail outlet to Hankow on the east, and with the cities of the Szechuan Railway to the west. At Changsha, the eastern terminus of the line, connection will be made with the great north and south trunk line now under construction (Canton-Hankow) thus providing another outlet to Hankow on the north and with Canton to the south. At this point connection will also be made with the future Changsha, Nanchang, Nanking railway thus providing a direct through outlet to the sea at Shanghai. The Agreement for the construction of this last line was recently entered into between the Chinese Government and the British and Chinese Corporation, and is dealt with elsewhere in this issue. It will be seen by a glance at a map that the connection at Changsha with the above line will create a continuous trunk railway from the sea at Shanghai through Nanking, Nanchang, Changsha, Changteh, Yuanchow and Kweiyang to Shingyifu. The combined systems thus connected, although owned and operated by the Chinese Government, are being financed and constructed by exclusive British interests. The Changsha section of the Shasi-Shingyifu railway is therefore of the greatest importance as providing the necessary link for through goods and passenger traffic from the sea coast to the extreme southwest of China, as well as for connecting with the other main systems. Although Shasi is the nominal terminus of the line, it is clear that the strategical traffic point of the new line will be located where connections are made with the other great trunk lines at Changsha, the capital of the province of Hunan.

The two lines from Shasi and Changsha will join to form the main southwestern trunk line at the port of Changteh, the largest commercial and trading centre in the Province of Hunan, located near the south-west corner of the Tungting Lake on the banks of the Yuan River. From this great distributing market, the line will proceed up the valley of the Yuan River, linking together the chain of cities, towns and villages which are closely scattered along the valley. Through Shenchow and Yuanchow, to the head of navigation at Chenyuan, and thence through the cities, and towns on the Kweichow highroad to the provincial capital at Kweiyang, and again westwards through Anshunfu to the terminal on the southwestern border of the province at Shingyifu. Here the line will connect with the Yanchow, Yunnanfu-Chungking Railway, the Agreement for the construction of which was entered into in January between the Chinese Government and the Banque Industrielle de Chine. This connection will provide for through rail communication with the city of Yunnanfu, the capital of Yunnan Province, from where a railway is already in operation into Indo-China. A glance at a map will show that apart from the purely local importance of the Shasi-Shingyifu line as a factor in the development of the districts through which it will pass, it will constitute a link in the chain of railways providing through communication from Europe to Indo-China and the British possessions in the Malay Peninsula. Rail communication between Europe and Hankow has been established now for several years, and as the Canton-Hankow, the Shasi-Shingyifu and the Yanchow-Yunnan lines are completed, through service will be possible from Paris to Haiphong. As the Governments of Indo-China and Siam are constructing lines which will ultimately connect, the Chinese lines will supply the link for the future rail communication between Europe and Singapore.

RECEIPTS AND EXPENDITURES OF CHINESE RAILWAYS

The following table gives the returns of various Chinese Railways from 1909 to 1912 inclusive. The figures before 1909 are omitted owing to the difficulty of distinguishing the traffic from the capital amounts. The Kaifeng-Honan Railway was not open to traffic in 1909, and in 1912 it was absorbed in connection with the Lung-Tsing-U-Hai Railway, so statements

for those two years are omitted. The Changsui extension of the Peking-Kalgan railway, the Canton-Kowloon and the Tientsin-Pukow Railways were not completed before 1912. The figures here given are traffic receipts which include income from the passenger and goods services, rentals, deposits, interests and other miscellaneous items. Expenditures include traffic expenses, interest on loans, expenses for repairs and maintenance. There may be some slight discrepancies in the figures for 1912, the first year of the Republic of China, but we may not be able to determine the precise figures until the final statement for the whole of that year is issued.

	Year	Receipts	Expenditure	Surplus	Deficit
Peking-Moukden	1909	11,698,332	5,259,294	6,439,038	
	1910	11,116,070	4,635,779	6,480,291	
	1911	10,943,191	5,136,474	5,806,717	
	1912	13,870,213	6,952,093	6,918,120	
	Total	47,627,806	21,983,640	25,644,166	
Peking-Hankow	1909	11,114,614	6,849,557	4,265,057	
	1910	12,242,858	7,341,907	4,900,951	
	1911	11,398,460	8,563,249	2,835,211	
	1912	13,673,218	7,468,111	6,205,107	
	Total	48,429,150	30,222,824	18,206,326	
Chengting-Taiyuanfu	1909	1,428,132	1,729,493		301,361
	1910	1,756,493	1,790,466		33,973
	1911	1,661,975	1,684,230		22,255
	1912	2,509,521	1,962,972	546,549	
	Total	7,356,121	7,167,161	188,960	
Taokow-Chingkwachen	1909	356,517	672,918		316,401
	1910	477,593	768,237		290,644
	1911	466,544	755,753		289,209
	1912	576,043	851,161		275,118
	Total	1,896,697	3,048,069		1,171,372
Kaifeng-Honanzu	1909				
	1910	555,300	1,442,920		887,620
	1911	612,500	1,473,900		861,400
	1912				
	Total	1,167,800	2,916,820		1,749,020
Shanghai-Nanking	1909	1,796,083	2,877,152		1,081,069
	1910	2,018,349	2,955,534		937,185
	1911	2,251,072	3,038,242		787,170
	1912	2,675,943	4,160,660		1,484,717
	Total	8,741,447	13,031,588		4,290,141
Chuchow-Pingsiang	1909	604,217	262,821	341,396	
	1910	686,289	295,156	391,133	
	1911	444,760	271,520	173,240	
	1912	240,020	229,243	10,775	
	Total	1,975,286	1,058,742	916,544	
Peking-Kalgan	1909	476,442	802,598		326,156
	1910	1,329,632	1,254,237	75,395	
	1911	1,456,241	979,447	506,794	
	1912	2,209,031	919,361	1,289,670	
	Total	5,501,346	3,955,643	1,545,703	
Changsui Extension	1912	382,679	209,316	173,363	
Canton-Kowloon	1912	608,107	1,407,562		799,455
Tientsin-Pukow	1912	5,689,431	6,065,025		375,594

UNIFICATION OF CHINA'S RAILWAY ACCOUNTS

The first fruits of the work of the Commission on the Unification of Railway Accounts and Statistics have been borne in the shape of the promulgation of the Classification of Capital Expenditures, for both Construction and Financial accounts, together with general rules and forms, etc., which have been drawn up in Chinese, English and French.

This must be highly gratifying to those who have shouldered the heat and burden of the work, for when the Commission began its unification labors last year there were many difficulties which appeared insurmountable, chiefly among them being the lack of precedents for such an undertaking and opposition from many directions. This being the first time in China's railway history that unification of a fundamental problem on a large scale has been taken up—one, too, which involved the modification of many existing practices on all the railways—it was but natural that much apprehension should prevail at the commencement. It was, in fact, only due to the firm stand taken by Minister Chu Chi-chien, and the continued support given by Minister Chou Tze-chi, and Mr. Yih Kung-cho, combined with the co-operation of all men taking part, that the Commission was able to carry out its programme so far.

The first question confronting the Commission was how to find proper men to do the work. In so far as the contemplated unification would involve the change of existing practices on the different railways and would also have to be suitable to local conditions, it was at once thought desirable to invite the Chief Accountants of the various railways to take an active part in the proposed reform. On the other hand, since the requirements of the Finance and Auditing Departments had to be kept constantly in view, it was also of necessity to have the services of men who were familiar with the requirements of the Central Government as well as with the work. The Commission, therefore, recommended the appointment of a number of the members of the Ministry interested in accounting and the Chief Accountants of the different railways as members of the Commission. In order to enable these men of the Ministry to get a clear insight into local conditions so as to understand and appreciate the local accounting problems of the railways, the Commission first sent two of the members to each one of the railways to make a thorough investigation of their organization and working. In so far as Japan was a neighbour with a similar written language, and had perhaps gone through similar difficulties in adopting and unifying her railway accounting system, her experience was, therefore, deemed of value, and two members, versed in Japanese, were deputed to make a study of the organization and working of the South Manchurian Railway. To take advantage of the experience of other countries, Dr. Henry C. Adams, the expert in charge of Railway Statistics and Accounts of the United States Government, was engaged as Adviser, so as to obtain the benefit of both scientific and independent guidance.

These preparatory steps having been taken, the Commission commenced its labors and has held three sessions, more than seventy meetings having been held. Gradually difficulties which loomed large at the outset diminished, and the discussions in the meetings were marked with harmony and co-operation; the work progressing with great rapidity.

There being many new railways under construction in China all in need of more adequate classification, or rules to guide them in the allocation of their construction expenditures, the first question taken up by the Commission was the classification of capital expenditures, with the hope that the new roads might adopt uniform classifications before they went too far, thus saving the irksome and costly work of re-arranging their accounts later.

By taking local conditions into constant consideration, and by careful examination of practices abroad, the Commission therefore drafted the Classifications of Capital Expenditures. This is divided into two parts, the first one covering construction accounts and the second dealing with financial accounts. Special care was taken to make the classifications practicable and suitable to conditions in China; and to allocate the expenditures in such

a simple and systematic manner as to enable the Government or the railway managements to see at a glance the cost of the different principal features of the property. Special effort was also made clearly to mark the lines of responsibility of the different chiefs of departments of the railway by allocating, as far as possible, the expenditures under the responsible officers. In so far as it is human nature to prefer making a good showing for oneself, by so allocating the expenses to the accounts of the responsible officers, the Commission hope to effect considerable economy.

The separation of salaries and allowances from other kinds of expenses is an improvement and should prove of great value to the country. As much railway material has to be imported, attention has been paid to show the cost of such material as compared with that of local production.

The separation of land in service from real estate will help the Government to measure the efficiency of the different managements. Rent from surplus land does not require much railway ability to realize, and in the absence of proper separation some of the railways which have much of such land have been able to swell their traffic earnings by such rent, thus making an undeserved better showing over others. This, however, is only one of many similar precautions taken to guard against misleading results of operation.

The separate treatment of the expenditures of the central mechanical works, as distinct from those of the railway proper, will help to measure the results of such works. Practically speaking central mechanical works are on the plane of outside operations for which separate or suspense accounts should be kept as in the case of a factory, failing which the efficiency and economy of such works become hard to determine. The present classification will make possible such a separate treatment of central mechanical and other special works if the Government decides so to do.

This new classification besides bringing about uniformity, which in itself is a very important thing, will enable the Government to see at a glance the different classes of expenditure in a scientific manner, and will also enable the Government to know what and how each railway costs. China may appreciate the importance of so recording costs by noting the disadvantages which have resulted from the lack of such records in other countries. For instance, the United States failed to unify her railway accounts until a late date, and this delay is now costing her some \$50,000,000 in an effort to find out the cost of her railways. China also had similar experience, although on a much smaller scale, in that in the absence of proper accounts she found considerable difficulty in fixing the prices of private railways, which she desired to purchase back from the merchants. In fact the principal cause of the failure of China's private railways and big business in general is the lack of proper accounting. By adopting and enforcing a uniform classification at this stage of her railway development, similar disadvantages may be avoided.

The Classification of Operating and Other Revenues is also finished. Depreciation rules and the Classification of Running, Traffic, Maintenance and General Administrative Expenses will also be ready in a few days. In the session which took place in July, the Net Revenue, and Profit and Loss Accounts, General Balance Sheet, etc., together with forms and rules governing administrative reports, statistical requirements, etc., were dealt with. From all prospects, it seems that unless some unforeseen development takes place the Commission may reasonably expect to finish its work by the end of August.

The Commission in the course of its effort to unify the accounts found many other difficulties. For instance the different languages used by the railways, which may appear a trifling matter, presented problems not found in other countries. On account of the loan agreements and established habits of the different railways, the Commission had to use three languages in their discussions, i.e., Chinese, English and French. As some of the members only knew one or two of the three languages, considerable difficulty and delay resulted.

Since these classifications are for the Government Railways, the Chinese language naturally should be made authoritative, but here, further trouble was encountered, for scientific terms in

Chinese are not standardized. The Commission sometimes found one railway term or article described by three or four different names on the different railways and they were compelled to adopt provisionally the English terms as standard pending the unification and standardization of the Chinese terms. This is only one of the many peculiar difficulties which do not obtain elsewhere.

On account of peculiar difficulties and in order to meet local requirements, a compromise had to be agreed to on many points, making the present code far from ideal. It is, however, the best that could be done under the circumstances, and if properly enforced, will be a great improvement over the past when each road was at liberty to group its expenditures in whatever manner it saw fit. Not only every head and every item in the new accounts have been thoroughly discussed and revised, but practically every word has been carefully considered. Moreover, this uniform system is not the work of any one man, but represents the crystalized opinion of the best qualified men now available in practically all China. But the value of a uniform system of accounts, or any other system lies more in the proper enforcement and application rather than the degree of perfection of the system itself. China has been criticised often on account of her failure to enforce the rules which she promulgates.

To the above effect the Chairman, Mr. Yih Kung-cho and the Vice-Chairman, Dr. Wang Ching-chun, the leading spirit in the movement, addressed the Minister of Communications, who eventually placed the whole matter before the President for promulgation. In so far as railway accounting is closely related to railway management and finance, and in so far as this is the first time that unification of an extensive and important kind has been applied to China's railways, thus starting the unification movement, it is hoped that effective measures will be taken for the proper enforcement of the proposed new system.



Sao-ke Alfred Sze,
Chinese Minister to the Court of St. James.

NEW CHINESE MINISTERS ABROAD

THE MINISTER TO LONDON

Mr. Sao Ke Alfred Sze, who has the distinction of having been appointed Chinese Minister to London at the age of 37 years, was born in Chekiang Province on April 10, 1877. He has had experience abroad which has gained for him a knowledge of Occidental life, customs, and learning which eminently fit him for the important position which he has been selected to fill. In addition, he has held responsible posts in his own country, and has an intimate knowledge of conditions in China and the multiplicity of questions which concern her politically. His first service abroad in the interests of China was in the capacity of Student Interpreter at the Chinese Legation at Washington, where he went in 1893. In 1899 he became secretary to the Chinese Commission to the First Hague Conference, and at its conclusion he was appointed attaché to the

Chinese Legation at St. Petersburg, where he remained till July 1899. Proceeding to America to complete his education he graduated from Cornell University in 1901, the degree of A.B. being conferred upon him, and in 1902 he passed his examinations for A.M. Returning to China in the autumn of 1902 he was appointed Secretary Interpreter to the late Viceroy Tuan Fang, and later he served under the late Viceroy Chang Chih Tung in a similar capacity. In 1905 he was appointed First Secretary to the Commission formed to go abroad to study Constitutional Governments, and with this commission he travelled round the world and was received at the different European courts. In 1906 he became Managing Director of the Peking-Hankow Railway; being transferred in 1907 to be Associate Director of the Imperial Railways of North China. He became Customs Taotai of Harbin in 1908, and remained in that post 26 months. In 1910 he was appointed Commissioner of Foreign Affairs of Kirin, Manchuria, but before taking up this post was appointed Junior Deputy Vice-President of the Waiwu-pu (Board of Foreign Affairs). He was promoted to be senior Deputy Vice-President in 1911, and in April of the same year was made Imperial Commissioner to the International Plague Conference at Moukden. In October, 1911, he was appointed Chinese Minister to America, Mexico, Cuba, and Peru, but, on account of the outbreak of the Revolution in China, he did not proceed. Unlike most other foreign educated students, he refrained from associating himself with the Revolutionary movement and lived quietly in Shanghai. Upon the formation of a Cabinet by the first Premier, Mr. Tang Shao-yi, he was made Minister of Communications, from which post he resigned later, owing to ill health. In 1913 he was nominated Minister of Washington but failed to receive the confirmation of the Young China Parliament, this being the penalty he paid for his aloofness from the Revolutionary movement. In November 1913, he became Master of Ceremonies to Yuan Shih-kai and in June, 1914, was appointed Minister to the Court of St. James.



Hsia Chia-fu, Chinese Minister to Washington.

THE MINISTER TO WASHINGTON

It is a co-incidence that Mr. Hsia Chia-fu, who is the new Minister to the United States, and who has already taken up his position, is also a native of Chekiang Province. He is 40 years of age and commenced his diplomatic experience by joining the Chinese Legation in Japan as an attaché some 15 years ago. Later he went to America, and from 1903 to 1908 was the Chinese Consul in New York. While in America he decided to profit by opportunities of education and took special courses in Columbia University. On his return to China in 1908 he became a Councillor to the Foreign Office, which post he held until 1910, when he was made Commissioner of Foreign Affairs in Yunnan. After the Revolution he took up the post of Director of the Tientsin Mint, and later was transferred to Newchwang as Customs Superintendent and Commissioner of Foreign Affairs. He was acting in this capacity when he was appointed to Washington as Minister.

CHANGES IN THE MINISTRY OF COMMUNICATIONS

In our last issue we mentioned that changes were to be effected in the executive arrangements in the Ministry of Communications. On July 21 a Presidential Order was published appointing the heads of the six departments into which railway and telegraphic affairs have been divided. Previously there were two bureaux—one for railways and one for telegraphs, a Director-General being in charge of each. Mr. Yih Kung-cho who presided over the Railway Bureau, has been made Vice-Minister of Communications, and Mr. Lung , who was Director-General of Telegraphs has been made Taovin (Circuit Intendant) at Kweiyang, the Capital of Kweichow Province.

The new chiefs of the six departments are—Department of Railway Administration—Mr. Yuan Ling; Department of Railway Construction—Mr. Sheng Chi; Department of Telegraphs—Mr. Chow Wan-peng; Department of General Audit—Mr. Wu Ying-ko; Department of Railway Accounts—Dr. Wang Ching-chun (better known as Dr. C. C. Wang); Department of Telegraphic Accounts—Mr. Tsiang Tseng-wei.

This rearrangement of offices means a division of the labour which has hitherto fallen upon the shoulders of the Directors-General, and should go far to simplify and facilitate work in the Ministry. Of the officials selected for the above posts the *Peking Daily News* has the following to say—

Mr. Yuan Ling is a native of Honan, and at present serves as the Chief of the Store Department of the Tientsin-Pukow Railway. He has considerable experience in connection with railway administration, but his name is not much known to the public. His new appointment is said to have been effected through special recommendation of the President who knows him quite well.

Mr. Sheng Chi is a native of Chihli. At present he is serving as Chief of the Section of railway construction in the Bureau of Railway Administration.

Mr. Chow Wan-peng is a native of Kiangsu and was educated in America. He was the Director of the Telegraph Office in Shanghai during the closing years of the Ching Dynasty, and is a recognised authority on telegraphic matters.

Mr. Wu Ying-k'o is a native of Kiangsu. He at present serves as the Inspector of the Tung-Ching Railway.

Dr. Wang Ching-chun (C. C. Wang) is a native of Lanchow, Chihli Province. At present he is serving as co-director of Peking-Hankow Railway. Since finishing his education in America he has been kept busily employed in various capacities. In all that he has done he has shown thoroughness, diligence and singleness of purpose. As Vice-Chairman of the Commission of the Unification of Accounts and Statistics, which he was chiefly instrumental in forming, he has proved himself a most hardworking official and an earnest conscientious worker. So much confidence has Vice-Minister Yih Kung-cho, who is Chairman of the Commission, in him, that he generally leaves its conferences and its actual work to be done by Dr. Wang.

Mr. Tsiang Tseng-wei is a native of Chekiang and was educated in Japan. He is at present the Chief Secretary of the Bureau of Posts and Communications.

Besides the official changes made in the Ministry of Communications itself, Mr. Liang Tun-yen, the Minister of Communications, also directs his attention to the administrations of all the Government Railways. With the exception of Mr. Li Tsoi-chee, Director of the Peking-Mukden Railway and Mr. Chung Mung-yew, Director of the Shanghai-Nanking Railway, who will be retained in their present posts, all the present Directors of the Government Railways will be removed. It is said that Mr. Yuan Chang-k'un at present Director of Telegraphs in Shanghai will be appointed Director of the Tientsin-Pukow Railway, Mr. Chang Jen-kuang, Director of Peking-Hankow Railway; and Mr. Tseng Kun-hua, co-Director of the Peking-Hankow Railway.

Shortly after Mr. Liang Tun-yen took charge as Minister of Communications, he sent two of his Secretaries to inspect the account books of all the Government Railways. As it is too difficult a task for two men, special arrangements will be made towards securing the services of experts for the work, in order to find out any dishonesty or forgery that might have been committed.

LIAO RIVER IMPROVEMENT WORKS

An interesting development took place early in June in connection with the arrangement made between the Diplomatic Body at Peking and the Chinese Government for a resumption of work upon the Liao River near Newchwang, the Governor of Fengtien Province disregarding the instructions sent him from Peking by dismissing the engineer appointed to carry on the work. The scheme for the improvement of the Liao River has, however, passed through several vicissitudes, and the incident which now draws attention to the situation is merely one of many. Work was actually begun upon the improvement of the river some six years ago, when Mr. W. R. Hughes, who had been engaged upon the construction of Chingwangtao Harbor, and the proposed harbor at Hulutao, was engaged to put into effect the proposals for the betterment of riverine conditions in the vicinity of Newchwang and Yingkow. These commercial ports were becoming seriously affected owing to the increasing volume of water which was finding its way to the sea by a new branch of the river known as the Schuangtaitze, which was formed some twenty years ago. Newchwang and Yingkow were finding themselves high and dry so far as junk traffic was concerned by the growing shallowness of the main stream, and to improve that state of affairs it was decided to build a weir across the Schuangtaitze, which was carrying to the sea more than seventy per cent. of the water of the Liao. At a bend on the river the weir was built, but only in the face of the protest of a large section of the inhabitants of the locality who were worked into a state of agitation by a class of people who found value in the branch as a means of reaching the interior without the knowledge of the Customs authorities who have stations on the main stream. Allegations were constantly being made that the drinking water was being interfered with, and that plea having been overcome by provision having been made for a certain amount of water to pass the weir, it was then alleged by inhabitants up the Liao that the weir was backing up the river to such an extent that floods were caused. One resident of a locality eighty miles distant solemnly averred that he had been flooded out of house and home as a result of the weir. After \$100,000 had been spent upon the weir, and when the branch was within fifteen feet of being closed, the people restrained themselves no longer. They attacked the workmen, drove them by force from the site, threw the pile drivers and other material into the Liao, and stole or burnt the timber being used on the work. Progress was thus effectively stopped, nor could the officials persuade the people to allow the work to continue. For two years, therefore, nothing has been done, but the increasing gravity of the situation of Newchwang and Yingkow compelled the merchants and commercial bodies again to take steps to have the vagrant Liao attended to. The result was the arrangement between the Consular body and the Chamber of Commerce at Newchwang for a River Conservancy scheme to be carried out with the aid of a tax upon shipping to deepen the bar, while the work on the upper part of the river was to be done by the Chinese Government. This proposal was placed before the Peking Government by the Diplomatic body and eventually an agreement was arrived at, it being stipulated that Mr. Hughes, who had previously been engaged upon the work, or some other equally competent engineer, should be the engineer-in-chief. The Peking Government thereupon instructed the Governor at Mukden to arrange for the commencement of operations, and his reply was to summon Mr. Hughes to Mukden, where he explained that he had no money for the purpose and believed the best solution of the matter would be to pay off Mr. Hughes, whose original agreement was expiring. Naturally this disregard of instructions from Peking, coupled with his cavalier treatment of the agreement come to with the Diplomatic Body and the claims of Mr. Hughes to consideration, incensed the Diplomatic Body, who lost no time in lodging a strong protest. The result was, however, that Peking adhered to its agreement and again instructed the Governor of Mukden to carry out its orders. Mr. Hughes will, therefore, proceed with his arrangements for a resumption of operations, and the future is upon the knees of the—erstwhile—hostile inhabitants.

THE SHANGHAI-HANGCHOW-NINGPO RAILWAY

NATIONALIZATION OF THE LINES

The nationalization of the railway which is in operation between Shanghai and Hangchow, and which is under construction to Ningpo, is an important development of the Chinese Government's policy of controlling all railways in the country which may form sections of future trunk systems. The line was built by two companies, one operating in Kiangsu province, and the other in Chekiang province; the right of construction being granted to the provincials by an Imperial Edict issued in 1905.

In 1906 construction work was begun, but it proceeded slowly and unsatisfactorily, and in March, 1908, the Government signed an agreement with the British and Chinese Corporation for a loan of £1,500,000 to carry on the work. Opposition was at once raised by the provincials, and renewed efforts were made to raise the money necessary to carry on the construction work. On the plea that the "sovereign rights" of the country were being sacrificed whenever a railway loan was signed with foreign financiers, the agitators managed to have a company formed in Kiangsu and one in Chekiang, and their claims to the right to construct and operate the line were recognised by the Government.

of Communications to be managed as a State concern but they would have none of that, and carried on a vigorous campaign in opposition to the proposal of nationalisation of railways made by the Minister of Communications in 1910. The agitation was so great throughout the country that it practically precipitated the revolution. By 1912-13, however, the Kiangsu people realised that they need hope for no return on their investments unless a change were made, and, inspired by a few wise shareholders, consented to a resumption of the property by the Government as the only method of regaining any of their money.

Negotiations went on for some time to effect an arrangement with the Government and at a meeting of shareholders of the Kiangsu Company on April 2, 1913, a resolution was carried approving of nationalisation.

On April 10, therefore, a formal petition was presented to the Government, the Company appointing Mr. Yang Ting-tung, the present Director of the Mining Bureau, to represent them in negotiations with the Ministry of Communications. The result was the preparation of a bill of thirteen articles to be submitted



KIANGSU RAILWAY,—Type of Bridges.

The loan agreement with the British and Chinese Corporation could not be cancelled, however, and though an Englishman was nominally Chief Engineer of the line the people resolutely refused even to allow him to walk over the route. The Government was placed in a difficult position, but in an endeavor to make the best of the situation drew up, with the two provincial Companies, a set of regulations whereby they might receive from the Government deposits necessary to build the railway. The situation thus created was the extraordinary one of the Government lending to the Companies money which the Companies objected to the Government receiving from foreigners at one-half per cent. higher interest than it was paying to the British and Chinese Corporation, Limited. The loan money had never been touched, though the Government had from time to time endeavored to persuade the British and Chinese Corporation that it should permit the Government to utilise the funds in other directions. The most persuasive arguments naturally fell upon unresponsive ears, and the Government went on paying five per cent. interest for the loan it could not use for five years, failing in the meantime to effect any satisfactory continuous arrangement with the provincials.

Though the latter built the lines they have never been able competently to manage them. Disputes prevented a junctioning of the two systems for a long time, and construction work proceeded in a desultory fashion. Shareholders in the Company never received any dividends, and owing to extremely bad management a railway which should have paid handsomely annually showed a loss. The Government several times urged the people to hand over their property upon a valuation to the Board

to the Cabinet, the proposal being made that the amount necessary to buy out the shareholders should be drawn from the loan which had so long lain in the Hongkong and Shanghai Bank.

Ultimately the bill was approved by the Cabinet, and the work of taking over the property commenced, Mr. Chung Mung-yew, the Managing Director of the Shanghai-Nanking railway, and Mr. Chang Shih-jen, of the Chinese Telegraph Administration, at Shanghai, proceeding on June 18, 1913, to the head offices of the Company to arrange the auditing of accounts. Seven assistant accountants were employed and the Company was instructed to open new books as from July 1, 1913, but the outbreak of the rebellion caused a suspension of work. At the end of August, 1913, order was restored in the locality, and the work of nationalisation was resumed.

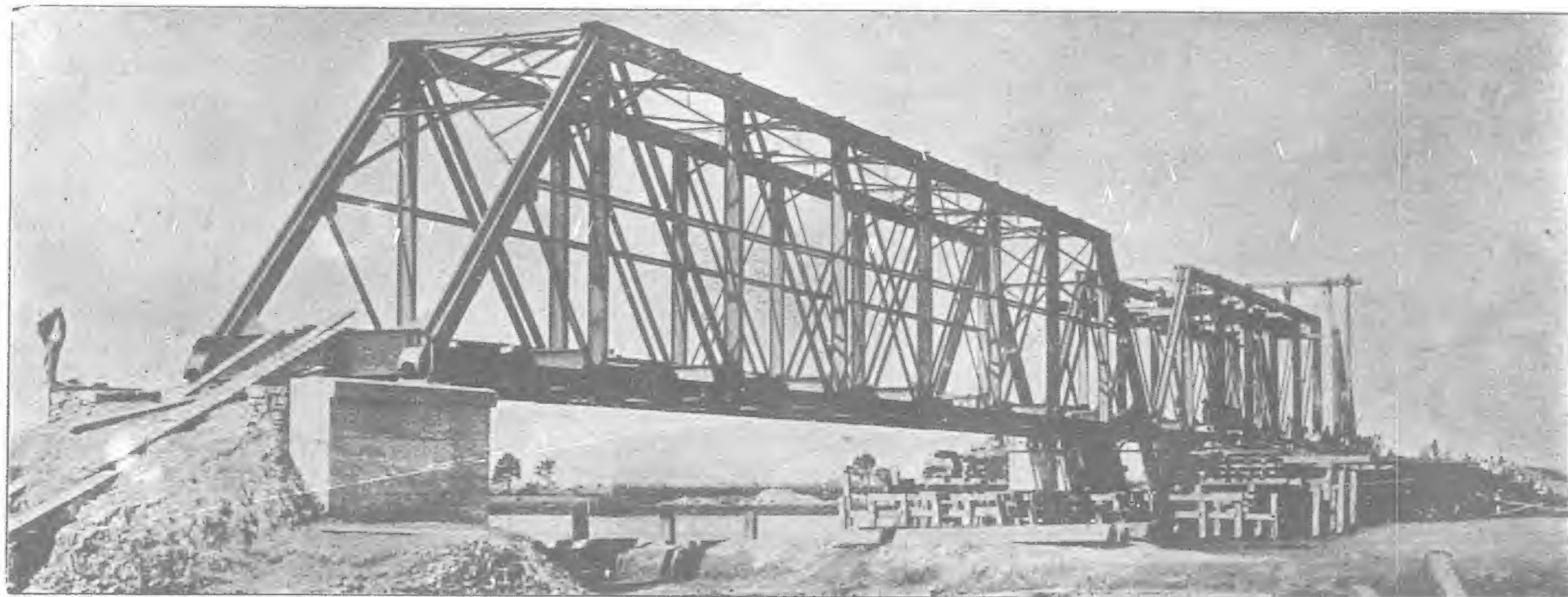
A little difficulty which has to be adjusted in connection with the taking over of the line is concerned with a loan made between the Kiangsu Railway Company and a Japanese firm during the existence of the Revolutionary Government at Nanking. A sum of Yen 3,000,000 was then raised upon the security of the railway itself at an annual interest of 8 per cent., the loan agreement providing that Japanese engineers should be given preference over other foreigners and if further capital were needed the Japanese should have the preference of supplying it. These terms naturally conflict with the loan originally made with the British for the construction of the line, but no doubt an amicable arrangement will be effected whereby the Japanese loan will be repaid and the "rights" secured by it be abrogated.

THE NATIONALISATION AGREEMENT.

The agreement came to between the Government and the Kiangsu Railway Company to effect the nationalisation of the line was as follows:—

An agreement made this twelfth day of the sixth month of the second year of the Republic of China (June 12, 1913)

principal shares valued at \$3,476,523, and interest bearing shares valued at \$1,073,895, shall be repaid by the Board with Treasury notes within 5 years beginning from the date of taking over of the Railway. Payments shall be made in three equal instalments per year; should the Government be prepared to make payments earlier than the time stated the same can be done upon two months' previous notice.



KIANGSU RAILWAY.—Bridge over the Zia-tang.

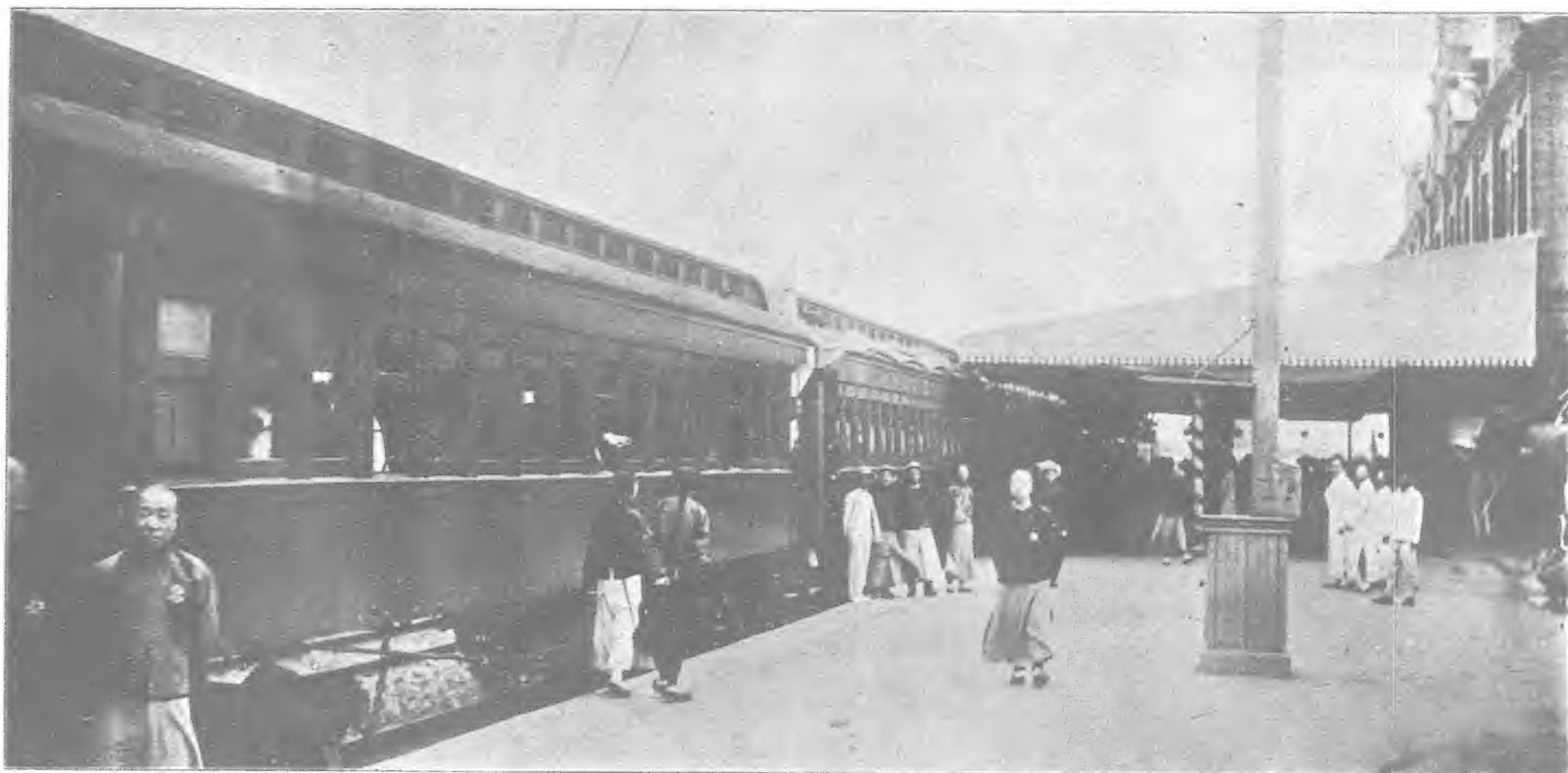
between the Kiangsu Railway Company (hereinafter called "the Company") represented by Mr. Yang Ting-tung (hereinafter called "the representative"), and the Board of Communications (hereinafter called "the Board.")

WHEREAS the Shareholders of the Company are willing to hand over this Railway to the Government; AND WHEREAS at a Shareholders' meeting Mr. Yang Ting-tung was appointed representative with full powers to negotiate with the Board regarding all matters concerning the above Railway; now, therefore, it is agreed as follows:—

ARTICLE III.—At the commencement of the date when the Railway is taken over by the Government the Board shall continue to pay interest on the unpaid capital of the shareholders in accordance with the rate originally arranged by the Company. The Solar calendar shall be used in reckoning interest. All interest to be paid at the time when the principal is repaid.

ARTICLE IV.—All Promoters' Shares are hereby cancelled and shall not be recognised as Ordinary Shares, and no repayment of capital or interest thereon shall be made.

ARTICLE V.—The Rules and Regulations for deposits for



KIANGSU RAILWAY.—The Station at Shanghai.

ARTICLE I.—The Company agrees to hand over all the existing line of Railway from Shanghai to Fengching, and all properties and rights belonging to the railway to the Government according to the decision arrived at a Shareholders' meeting. The Railway shall be controlled by the Board direct and all rights formerly belonging to the Railway shall be cancelled.

ARTICLE II.—All the shares of the Company consisting of

the Kiangsu-Chekiang Railway drawn up by the Board of Posts and Communications on the 15th day of the 3rd moon of the 34 year of Kuang Hsu of the Ching Dynasty, consisting of 14 Articles shall be considered as null and void, so far as the Kiangsu Railway is concerned.

ARTICLE VI.—Upon the dissolution of the Company, a special Accounting Office shall be established. The regulations

governing the organisation of the said office shall be drawn up separately.

ARTICLE VII.—All *bona fide* deposits and outstanding debts of the Railway shall be taken over by the Board, but all such shall be limited to the amounts contained in the sixth annual report of the Company.

ARTICLE VIII.—From the time this agreement is signed up to the time the Railway is actually taken over by the Government

The Kiangsu Railway

The nationalisation of the Kiangsu Railway and the criticism which have for a long time been levelled against this line lend interest to a statement of the condition of the railway as ascertained upon careful examination by the engineers deputed to make a report for valuation purposes.

It is reported that the alignment of the railway generally is



KIANGSU RAILWAY.—Station and Offices at Shanghai.

the Company shall undertake to manage and control all properties, accounts, receipts and disbursements of the Company with the utmost discretion, and shall bear full responsibility.

ARTICLE IX.—All unexpired agreements and contracts relating to employees, transportation, leasing of land, etc., shall continue to be effective if there is no unusual circumstance.

ARTICLE X.—Upon the signing of this agreement the Board shall delegate officials to audit the accounts of the Company. The Company shall instruct the Accountants concerned to make inventories of the property and submit all books, contracts and vouchers to the officials for examination.

ARTICLE XI.—The day for taking over the Railway shall be the 1st day of the 7th month of the second year of the Republic (July 1, 1913.)

good, the maximum gradient being 1 in 250 but, as only a few short lengths of this have been used, the line is very easy.

Formation.—In so far as formation is concerned the standard width adopted is 18 feet, and throughout this is well maintained; while in some places there is considerable excess, 23 feet being measured. It is uneven in parts and generally inclined to be low. Good cesses are left along all banks with the exception of the approaches to Bridges Nos. 30 (Peh Yao King) and 31 (Zia Tong). The slopes to 15 feet banks are steep, but are well grown over with vegetation and show no signs of slipping or of undue erosion. The slopes of banks in creek diversions are cut, or have eroded so that they are almost vertical and may slip in, to the detriment of the waterway and the adjoining property.

Little attention appears to have been given to the convenience



KIANGSU RAILWAY.—Sungkiangfu Station.

ARTICLE XII.—The Board shall not be held responsible for the repayment of all sums not specified in this agreement.

ARTICLE XIII.—All detailed procedure for the carrying out of the above mentioned provisions shall be discussed between the representative and the Board

(Sgd.) Yang Ting-tung,

Representative of Kiangsu Rly. Co., and sealed by the

BOARD OF COMMUNICATIONS.

of water borne traffic in the construction of this Railway. In several cases the line is taken through creeks of considerable width without opening of any description being provided.

Good approach roads to all stations from the nearest town or village are an excellent feature.

Bridgework.—The masonry of bridges generally is of a substantial character.

The steel work is in good condition and is stated to be

designed for a load of two tons per lineal foot which would be amply strong for all traffic requirements.

The drawings of bridges said to be completed from actual dimensions show foundations of ample design. Little settlement has so far been noted in any of them.

The water ways provided are inadequate, and further provision is necessary in several places. Even at the major bridges the free flow of water has been considerably impeded by mounds of rough rubble, and constant care must be exercised in noting and preventing erosion.

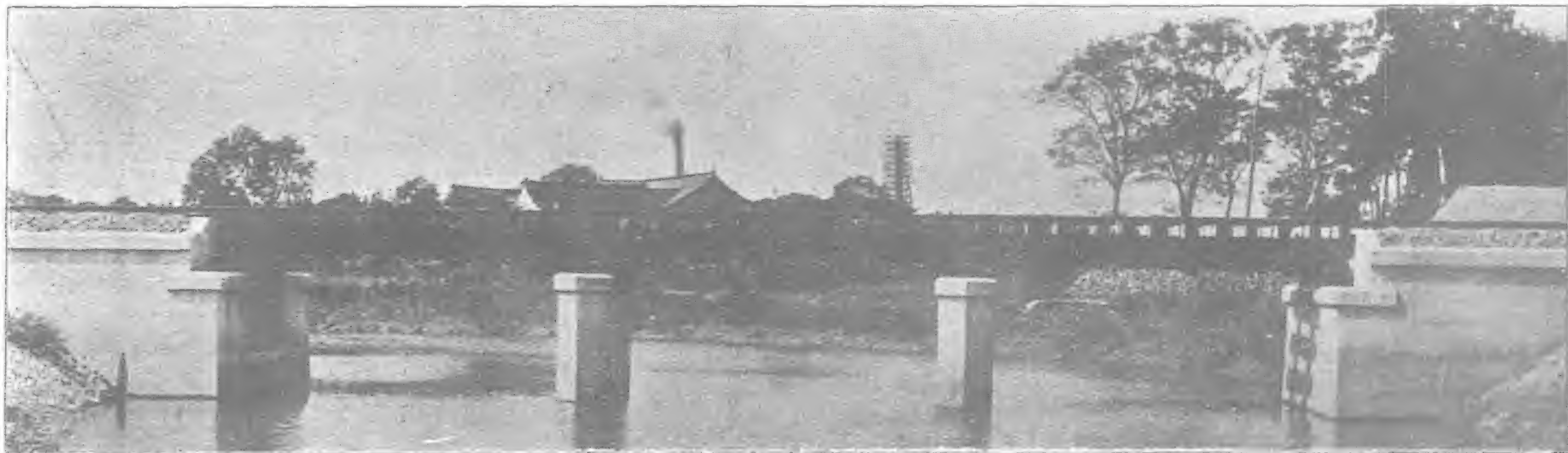
An additional opening is being made near the Lo Tien Wan bridge consisting of a two 40 feet span bridge. Here again rubble is being put in, considerably reducing the effective water way. Other measures adopted to remedy the inadequacy of the water ways consist of two sets of six 2 feet culvert pipes. This is an expensive and ineffectual method of obtaining the desired result.

Bridges Nos. 43, 45 and 46 give particularly inadequate openings. The tides are very strong here and the water rushes through like a mill race, causing considerable erosion. Divers are periodically employed to investigate and report on the condition of the various river beds but no records appear to be kept of this essential information. Various expedients have been adopted to break the force of the tides, in one case a rubble

ballast is very coarse and could be broken up with advantage. There is a large stock of ballast in hand.

Permanent Way.—The sleepers are of three varieties, the names of which were not obtainable. The prices are No. 1. Tls. 1.80; No. 2. Tls. 1.20; No. 3. Tls. 0.93. The major portion are of the No. 3 variety. No records of the life of these sleepers have been kept but it was stated that the No. 1 lasts about two years, the No. 2 about 1 year and the No. 3 is only serviceable for 9 months. The number of sleepers renewed per annum is between 20 to 30 thousand the whole line being practically resleepered every three years. The principal portion of the work of the gangs is therefore the conveyance of, and the renewal of sleepers. Taking this into consideration the running surface of the line is good. A considerable number of sleepers need immediate renewal and longer life might be obtained from even the poorest quality by better road bed drainage. The sleepers taken out are so rotten that they crumble to pieces in the hand, so have long since passed their short period of usefulness in the line. Some new sleepers were examined and found to contain a large proportion of sap wood. The standard size is 8 feet long, 9 inches wide by 6 inches deep. No holes are drilled for the dog spikes, consequently a good deal of splitting, especially with the No. 1 variety, is experienced. Apart from this the difficulty of obtaining correct gangs is materially increased.

Rails.—The rails are 30 feet long, 75 lbs. per yard, rolled at



KIANGSU RAILWAY.—Type of Bridge Work.

dam is put through the up stream side of a creek of considerable size. Rubble has been profusely dumped into the streams with the evident intention of preventing erosion.

The steel work of the majority of the bridges is carried on timbers instead of bed stones which necessitates constant renewals.

Fencing and Boundaries.—Fencing is generally of timber, open pale design. The Shanghai yard is fenced with a low bamboo fence. The boundaries are well marked with stones. Throughout the line an adequate width of land appears to have been taken. At Shanghai little provision is made for further development.

Signs.—The line is measured in "li", and marked with Cast Iron Standards of good design. Gradient posts are of cast iron and good design. "Warning" or "Whistling" notice boards are erected, where required, but the arms are generally too close to passing trains for safety.

Communication.—This is provided throughout by electric telegraph and telephones to all stations. The poles are slight and the wires strained up tightly, with insufficient guys at changes in direction.

Track.—Ballast—The ballast is a hard limestone of good quality. Although generously (even extravagantly) provided along the sides of the line there is not sufficient depth under the sleepers. On the first ten miles there is practically none. The method of piling up the ballast at the ends of the sleepers and the low formation unduly accentuates the amount of ballast and makes it difficult for the permanent way gangs to work. The

the Hanyang Iron Works. No records are kept of broken rails, but 1% was given as the proportion. A good deal of chipping at the ends of rails was noticed and flaws in the heads were fairly frequent. The presence of some very bad chilled iron wheels on the rolling stock may be accountable for some of this damage.

Fastenings.—Angle fishplates are used with six fish bolt holes. The bottom table is notched for two dog spikes. They appear amply strong for the type of rails adopted. The dog spikes used originally were 5½ inches long by ½ inch square, these were found to be too light and the latest pattern adopted is 6½ inches long by ¾ inch square. The Shanghai Nanking Railway pattern is 5 inches long by ¾ inch square, a much heavier spike. After the passage of a fast train it was noticeable that a large proportion of the spikes were partially drawn.

Points and Crossings.—These have been manufactured locally and are of weak design. The switch tongues are badly chipped. The leads adopted in the main line at loop stations are 1 in 12 facing 1 in 10 trailing. The arrangement, however, is not of special utility as there is no "Up" and "Down" the lines being used indifferently for both ways, governed by the crossing of trains at the various loop stations. All points and crossings are from ¾ inch to 1 inch slack to gauge. The gauging of the main line throughout is faulty. The standard gauge was tested and found to be ¼ inch full, so correct gauge is not possible. This fact is accountable for an excessive amount of wear and tear on permanent way, engines, and rolling stock. The running surface is very fair on tangents, but faulty at curves. The alignment of some curves is not true. The curves generally are

of easy radii with the exceptions already noted. Superelevation is not correctly obtained, on the No. 4 curve it is excessive. On sidings also superelevation is excessive and in most cases superfluous.

Water Supply.—The water supplies at Shanghai, Sungkiang, and Fengching are for locomotive purposes only. Shanghai is supplied by a pulsometer. At the other two stations hand pumps are used. The position of the water tank at Fengching is not



KIANGSU RAILWAY,—LUNG-HUA STATION.

Stations and Buildings.—The buildings throughout are of substantial construction and are generally in good condition. They appear to be adequate, but booking arrangements for passengers in some cases are cramped. The paint used leaves much to be desired.

It is of very inferior quality, of local origin, and does not last satisfactorily for twelve months. All platforms are of the high type with brick walls and concrete copings. With the exception of Shanghai Station they are generally too short. The surfacing of platforms is fair. There are passenger shelters at all stations with the exception of Zah Hu Tang. The footbridges at the various stations are substantial design and in fair condition. A good type of crossing gate and house is provided at principal crossings and all are in good order. The staff quarters and gang house are well built, give ample accommodation, and are well maintained.

Lighting.—Shanghai Station and offices are electrically lighted from the local supply. Other Stations have oil lamps.

satisfactory as it is situated about half a mile outside the station on the main line. A turntable 65 feet diameter is provided at Shanghai and is in excellent order.

Signals.—Signals are provided at each station, one at either end, 1,000 feet from the points. There is no interlocking so that both signals may be pulled off together. At some stations where the signals are not in use owing to the loop being temporarily disconnected, the arms have not been removed and no provision has been made to indicate this. Drivers therefore continually pass these signals at danger.

Tools.—The permanent way tools are generally in good serviceable condition, each gang being provided with an adequate supply. Every gang has a heavy material trolley but no precautions

are taken to secure these when off the line. The average number of beater picks used per annum is 2,000 and shovels are used at the rate of 200 per annum. For a similar length of line on the Shanghai-Nanking Railway 500 beater picks



KIANGSU RAILWAY,—The road bed.



KIANGSU RAILWAY,—Locomotive Shed and Water Tank at Shanghai.



KIANGSU RAILWAY.—Passenger cars.

and 100 shovels per annum are used. All permanent way gauges tested were found to be incorrect.

Permanent Way Gangs.—There are 3 track foremen; 20 gangs consisting of 1 ganger and 8 coolies; 2 flying gangs 20 coolies each. As a comparison on a similar length of line the Shanghai-Nanking Railway has 95 coolies against 200 on this Railway.

Records and Reports.—Track foremen report once a month to the Engineer in Charge, beyond this there seems to be nothing. No records of any description appear to be kept so that it is not possible to compare costs or draw reliable conclusions for the general control of expenditure and improvement of maintenance.

General.—The line is not in good running condition but with

4 30-ton steel covered goods' wagons on 33 ft. 0 in. \times 10 ft. 0 in. underframes.

10 30-ton medium sided wagons on 33 ft. 3 in. \times 9 ft. 3 in. underframes.

2 cattle wagons on 33 ft. 0 in. \times 10 ft. 0 in. underframes.

2 pig wagons on 33 ft. 0 in. \times 10 ft. 0 in. underframes.

Engines.—No. 5 is a small shunting tank engine of the 0-6-0 type British built. Cylinder 13 in. \times 19 $\frac{1}{2}$ in.; diameter of wheels 3 ft. 1 $\frac{3}{8}$ in.; steam pressure 170 lbs.; grate area 14 sq. ft.; water capacity 660 gallons; coal capacity 1980 lbs.; weight 28 tons;

No. 7 Engine is a shunting tank with an extra tank attached for water, type 0-8-0 German built. Weight 45 tons; diameter of wheels 3 ft. 10 in.

Nos. 1, 2 and 3 goods' engines, these are American built and of the 2-6-0 type. Cylinder 20 in. \times 26 in.; diameter of driving wheels 5 ft. 4 in.; wheel base 22 ft. 6 in.; steam pressure 180 lbs.; water capacity 5,000 gallons; coal capacity 6 tons; weight of engine and tender 110 tons.

Nos. 6, 8 and 9. passenger engines, German built of the 4-4-0 type. Cylinder 16 $\frac{1}{8}$ in. \times 23 $\frac{1}{2}$ in.; diameter of driving wheels 5 ft. 8 $\frac{3}{8}$ in.; wheel base 24 ft. 3 $\frac{1}{2}$ in.; steam pressure 168 lbs.; weight 85 tons.

All the passenger coaches (excepting the two brake vans and mail van) are fitted with the Westinghouse Brake, electric light and oil lamps; electric light is obtained from the two dynamo cars, these being fitted with a dynamo slung underneath



KIANGSU RAILWAY.—Zia-tang Bridge.

expert supervision it could be improved in due course and the present high expenditure considerably reduced.

Rolling Stock.—The rolling stock consists of eight engines, 36 passenger cars, 2 passenger car underframes, 81 wagons, 1 steam pump with boiler, 2 No. 16 challenge hand pumps, 14 screw Jacks, 1 pit Jack, 1 drilling machine, 1 lathe and 1 trolley.

Coaches.—2 First class coupe passenger cars on 55 feet 6 inches underframes, with seating accommodation for 42 each.

2 First and Second class composite cars on 60 ft. 3 in. underframes, seating accommodation 24 first and 40 second each.

1 second class passenger car on 55 ft. 3 in. underframes, seating accommodation for 58.

2 second class passenger kitchen cars on 55 ft. 0 in. underframes seating accommodation for 40 each.

2 second class passenger cars on 55 ft. 0 in. underframes, accommodation for 68 each.

19 Third class passenger cars with a total seating accommodation of 1804.

3 Fourth or Coolie class cars on 56 ft. 8 in. underframes with seating accommodation for 132 each.

2 Dynamo cars on 37 feet underframes.

1 Mail van on 17 ft. 6 in. underframes.

2 Brake vans on 15 ft. 6 in. underframes.

Wagons.—19 30-ton steel covered goods' wagons on 30 ft. 8 in. \times 9 feet. 7 in. underframes.

4 30-ton steel covered goods' wagons on 33 ft. 0 in. \times 9 ft. 7 in. underframes.

and run off the axle. One car has 19 batteries and the other 17.

As there are only two dynamo cars, the fast and express trains are the only ones that can be lit electrically.

The goods' wagons are fitted with hand brakes only, a number of these, however, are out of order.

Practically the whole of the engines and carriages and a number of wagons require thoroughly overhauling.

The passenger and tank engines are suitable for the work they have to perform but the goods engines are far too heavy for the weight of the rails, and much too expensive to run economically the service they are on.

The engines are burning on an average, 128 lbs. of coal per mile.



KIANGSU RAILWAY.—A typical station.

The Chekiang Railway

The vicissitudes which attended the operations of most Chinese privately owned railways also fell to the lot of the Chekiang Railway Company. It was organized with a capital of \$5,000,000 to build and construct the line from Fengching to Hangchow, in circumstances similar to those attending the organization of the Kiangsu Railway Company. In June, 1908, in order to provide funds for the extension to Ningpo and the construction of the Chien Tang bridge at Hangchow, an increase of capital of \$15,000,000 was authorized, to be paid in 5 yearly instalments. Only Chinese were permitted to subscribe or hold stock and the number of shareholders was reported to be over 53,000, about 40,000 of whom were coolies, farmers and small tradesmen, some holding as low as \$5.00 in shares. The first call on the new issue of \$3,000,000 was reported to have been paid in.

Up to the completion of the two roads, both companies had ample funds at their disposal without recourse to the British loan to carry out all their work and purchase all materials. Of the \$1,500,000 loan, the Board of Communications allotted a certain sum to the two companies at $5\frac{1}{2}\%$ interest, charging 7% of the amount as premium. Although the loan provided for the employment of a British engineer and the purchasing of the materials through the British and Chinese Corporations the Chekiang Railway Co. declined to avail themselves of the purchasing agents' services and in consequence has had to pay the

sum of \$250,000 Mex. in lieu of the 5% commission stipulated in the Loan agreement.

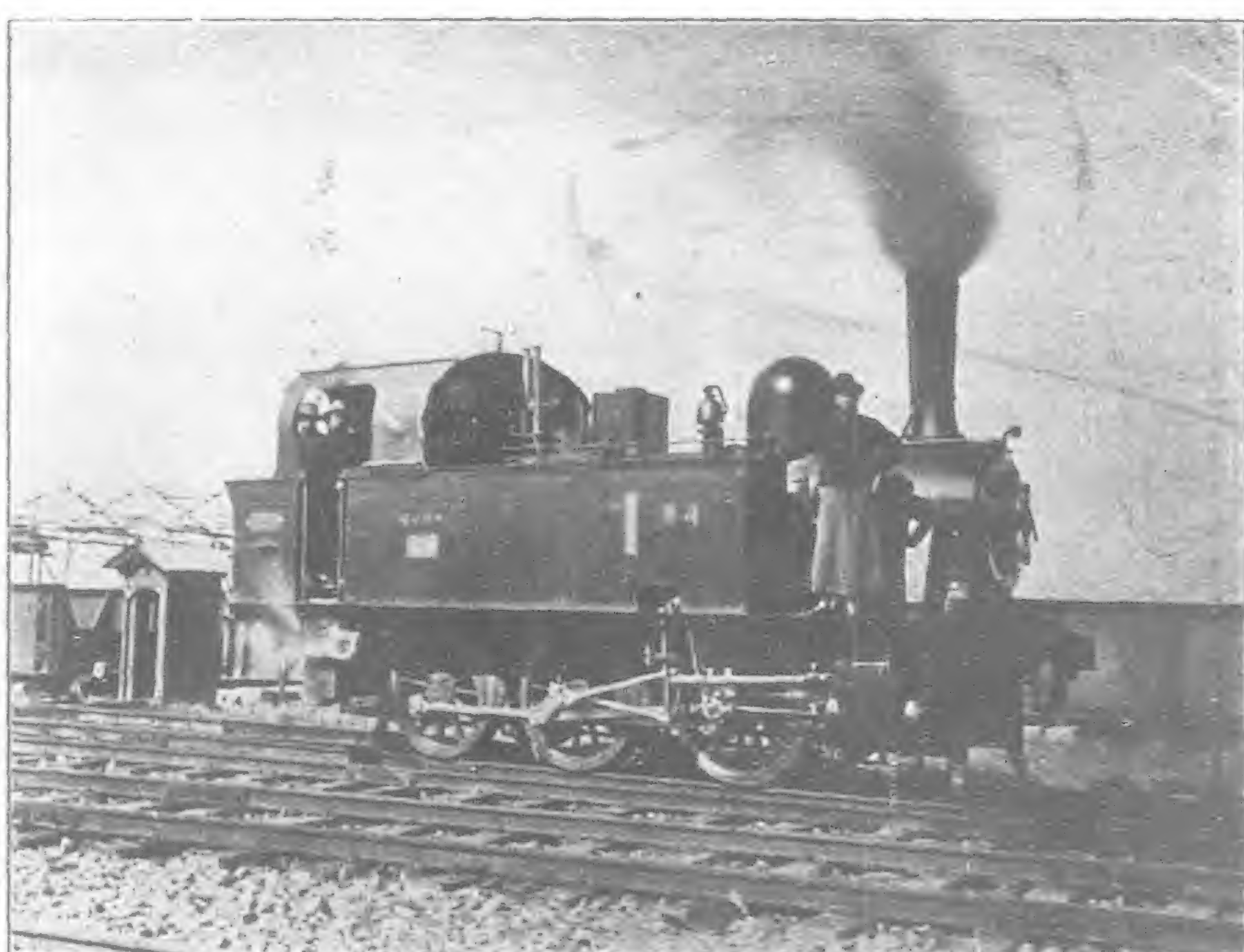
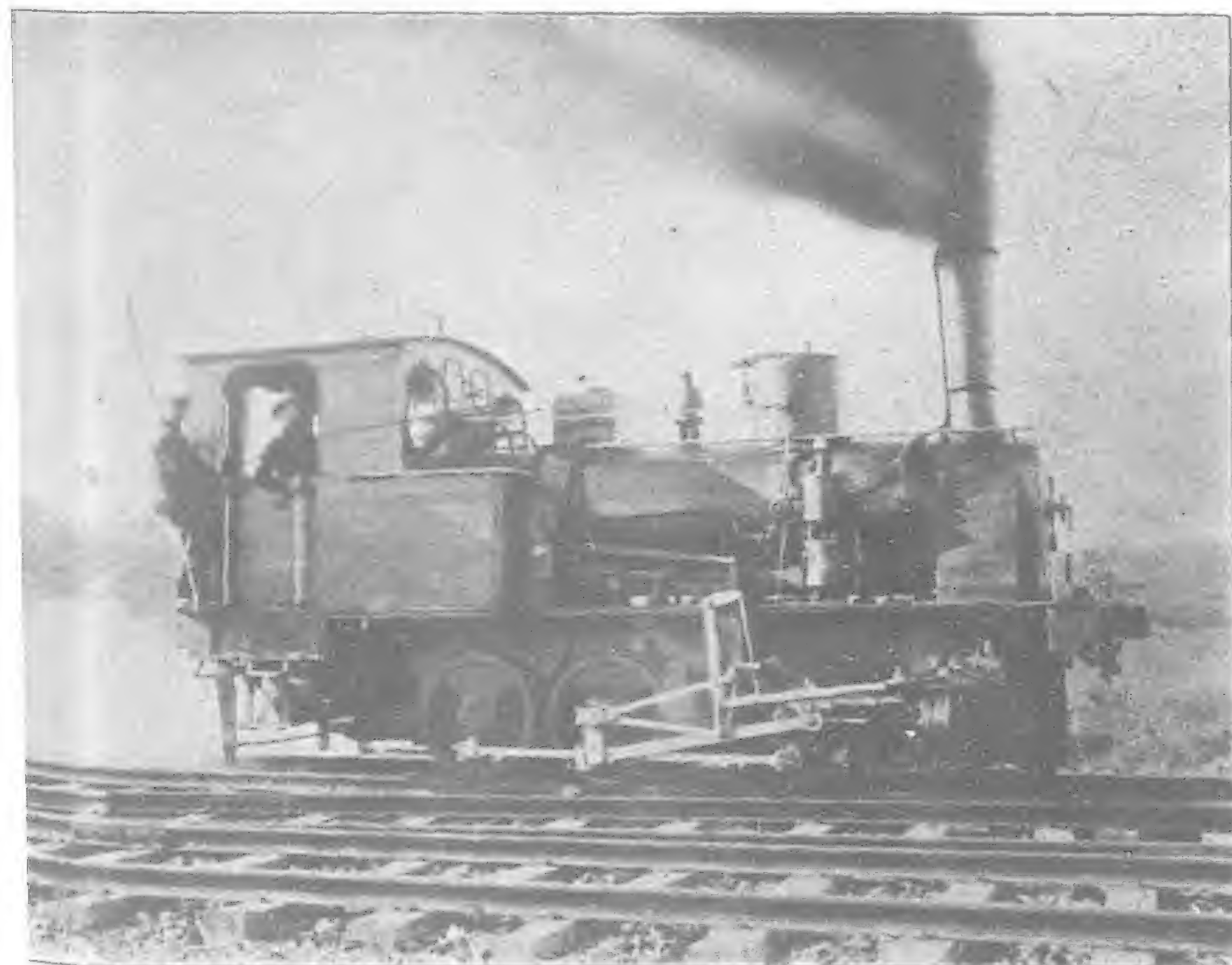
The Chekiang Company, not needing its share of the British Loan, loaned the money to Chinese Banks at a higher rate of interest than that exacted from them by the Yuchuanpu (Board of Communications). The actual cost of the Fengching to Hangchow line was \$43,000, Mex. per mile including cost of earthwork, tracks, stations and all charges. The branch line from Zah Kow to Heng-leng Chiao cost \$79,200 Mex. per mile, exclusive of rolling stock. It has 8 major bridges with spans over 40 feet; 111 minor bridges with spans from 10 to 30 feet. The waterway opening per mile is only 22 feet. The country traversed by both the Chekiang and Kiangsu Railways is a network of canals and waterways the natural highways of commerce and trade in this low lying section. The closing or narrowing of those streams by cofferdams to the detriment of the great junk and river traffic was prohibited by the authorities so in many instances the railway engineer put into practice the old scheme of building one abutment at the water's edge, the other on dry land to one

side, and then after completion, the shallow canal was diverted from its old channel to the new ones between the abutments. The line is practically on the surface throughout, and the cost per mile should have been much less than it was.

The ties on both lines which were purchased in Japan, are of standard sizes 8 ft. \times 8" \times 6" spaced 2 ft. 4 in. between



CHEKIANG RAILWAY.—First Class Passenger Coach.



CHEKIANG RAILWAY.—German "Borsig" Locomotives.

centers. They cost delivered No. 1 Tls. 1.80; No. 2 Tls. 1.20 and No. 3 Tls. 0.93. Many had to be renewed after one year's service. The ballast is limestone and sandstone secured from quarries near Hangchow with rail connections with the main line. There is no ballast under the road on the Fengching section. The cost delivered at the track was about 60 cents Mexican or 25 cents per cubic yard.

The entire line from Shanghai to Hangchow is 116 miles long. The Chekiang section has in addition 36 miles of sidings. The line is single track, standard gauge and the rails of 75 lbs. to the yard, of Standard Section, 10 meters long, laid with even joints. These were manufactured at the Hanyang Iron & Steel Works, opposite Hankow.

The Chekiang Railway has 15 depots and the Kiangsu line 10.

On the Chekiang Railway there are no grades of more than 2-10 of 1%, and no curves of more than 3 degrees: labor is the cheapest in the world, and there is only about \$2,200,000 gold invested in the property. At the outset, the passenger receipts alone between Kashing and Hangchow, a distance of 60 miles, averaged \$3,000 Mexican per diem.

It has been mentioned elsewhere that considerable difficulty was experienced in persuading the proprietors of the Chekiang Railway that their real interests lay in agreeing to the taking over of the line by the Ministry. Local pride and prejudice generated considerable opposition against the proposal and at meetings of shareholders great heat was shown. Gradually, however, wise counsels prevailed and on March 1, 1914, the Company shareholders met at Hangchow and agreed by 9,757 votes to

1,428 votes to sell out their shares to the Government. The acquirement of the Kiangsu section of the railway by the Government made the sale of the Chekiang section inevitable, but it was not until a considerable amount of ill-feeling had been displayed that the resumption by the Government was agreed to. Since then active investigations have been made to determine an equitable figure at which the line should be taken over. This has been a task presenting many difficulties. The system of keeping accounts left

much to be desired, and perhaps no better proof of the imperative necessity of uniformity in keeping railway accounts could be found than the state of things which exists on this line. Gradually, however, matters are being straightened out and it is hoped that shortly the formal transfer of the line will take place. Probably the amount eventually paid to the Chekiang Railway Company will be in the neighbourhood of nine and a half million dollars. It has to be remembered that the Chekiang Railway includes the portion from Ningpo the Tsao Ngo River and that 70 miles has to be completed.

It is understood that considerable expenditure will be required to bring the line into a safe and sound condition.

In many respects it has been neglected and work which would have cost comparatively little if done in time will have to be carried out at a greatly increased cost. This, however, is a minor consideration. The really important thing is that at last the line is to pass under the control of the Central Government, and there is every reason to believe that it will henceforward be a valuable addition to the communications of the country.



CHEKIANG RAILWAY.—Third Class Station.

HULUTAO AS A CHINESE PORT

DESCRIPTION OF THE HARBOR IMPROVEMENT PROJECT

The steps which are now being taken by the Chinese Government to open Hulutao and other centres in North China to foreign trade draw particular attention to the natural advantages and possibilities of Hulutao as a harbor for the accommodation of ocean going steamers and a shipping centre for a rich and extensive hinterland.

Hulutao is situated on the coast about 110 miles north of Chingwantao, and is connected by a branch line with the Peking-Moukden railway at Lienshan, which station is some seven and a half miles distant. It is 31 miles from Chinchow, and, taking Moukden as a centre the distance to Hulutao is 184.16 miles, while the present line from Moukden to the seaport of Dalny is 246.7 miles, an advantage in favor of Hulutao of 62½ miles shorter for freighting purposes, and correspondingly an increased advantage for every point from Moukden to Lienshan. Hsinminfu is 37 miles from Moukden or 147 miles from Hulutao, and 283 miles from Dalny, so that cargo going to Hulutao from Hsinminfu district would have 136 miles shorter distance to be carried in order to reach the sea for shipment than if it went via Dalny. The distance from Moukden to Chinwangtao is 30 miles further than from Moukden to Dalny. The distance from Moukden to Yinkow by the South Manchurian Railway is 112 miles, or 72 miles nearer than to Hulutao, but the distance by the Chinese

railway is only 20 miles nearer. Yingkow, however, has the disadvantage of being frozen four months in the year, from November to March, so that no ships can enter during that period, and it is then useless as a port. The distance from Hulutao to Taonanfu is about 290 miles, but this section of the country abounds in coal mines of excellent quality notably at Peipiao, 55 miles distant, and at Tayaokou, 70 miles. Hsinhiu, near Hsinminfu, has also excellent mines, and no doubt they will eventually be opened by modern methods and will bring much traffic to Hulutao. The development of local traffic when the Taonanfu railway is built with suitable branches will also be considerable, for, no doubt, it

will be followed by the settlement of all available parts of the country it passes through and will bring great quantities of cereal and mineral products within reach of shipment by sea via Hulutao. Any railway construction and consequent development of mines or agriculture to the north and west of Hulutao must create enormous traffic for shipment at Hulutao for it is the natural outlet by sea from Manchuria and Inner Mongolia.

As well as being favorably situated as a seaport Hulutao has the advantage of a good natural depth of water giving 30 feet at low tide, where the end berths of the projected breakwater will be situated if the project which has been devised is carried out by the Chinese Government.



HULUTAO.—General View of the Harbor.

The water rises 8 feet to 10 feet at spring tides and it will be easy of access from the sea for shipping at all times. As regards ice conditions it is also favorably situated considering its position in the Gulf of Liaotung, for the ice on the south side never forms all over the bay till late in the season and then only for ten days or so, but not of sufficient thickness safely to support the weight of a man. The strong tidal current and deeper water at Hulutao, together with the considerable rise of tide, seems to bring about a condition which is unfavorable to its freezing very thickly, though abnormal winters might cause a freezing for at most a month. Observations, however, show that it is no unusual condition for perfectly open water to be at Hulutao or the neighborhood when ice is six inches thick at Chinwangtao.

Hulutao has not only all the requisites for making a good harbor, but also is beautifully situated for a summer resort, and although this is of little importance as regards the harbor, yet it is an advantage from the point of view of its value as a property, for no other seaside place in the north of China is so attractive as regards scenery, and it will no doubt become a popular resort when its advantages in this respect are realized. The money that is annually expended by visitors and property owners at seaside resorts amounts to a very considerable sum, which adds to the value of the land and is of great importance to the neighboring villages for many miles around, as is instanced at Peitaiho. One of the advantages of Hulutao would be that the railway goes right down to the sea instead of stopping six or seven miles away as at Shanhaikwan or Peitaiho.

Hulutao is a narrow promontory running out into the sea in a direction roughly speaking from west to east at right angles to the coast line, its western extremity joining the main land and its eastern end projecting two miles further into the sea. It is covered with numerous

appeared to be the most suitable, if not the only fit place for a harbor, both from its natural conditions and its situation as regards the trade of a large part of the province of Fengtien and that of the undeveloped portion of Mongolia between it and Taonanfu.

The report was favorably considered by the Governor of the province, who also decided to adopt the project made for the improvement of the port, and an order was given to proceed with the scheme in the early part of October, 1910, but by October 15 of the following year they were suspended on account of the outbreak of the revolution, owing to the lack of funds.

Mr. Hughes advocated (1) that a branch railway should be built to connect Hulutao with Lienshan station on the Peking-Moukden line, as a first step.

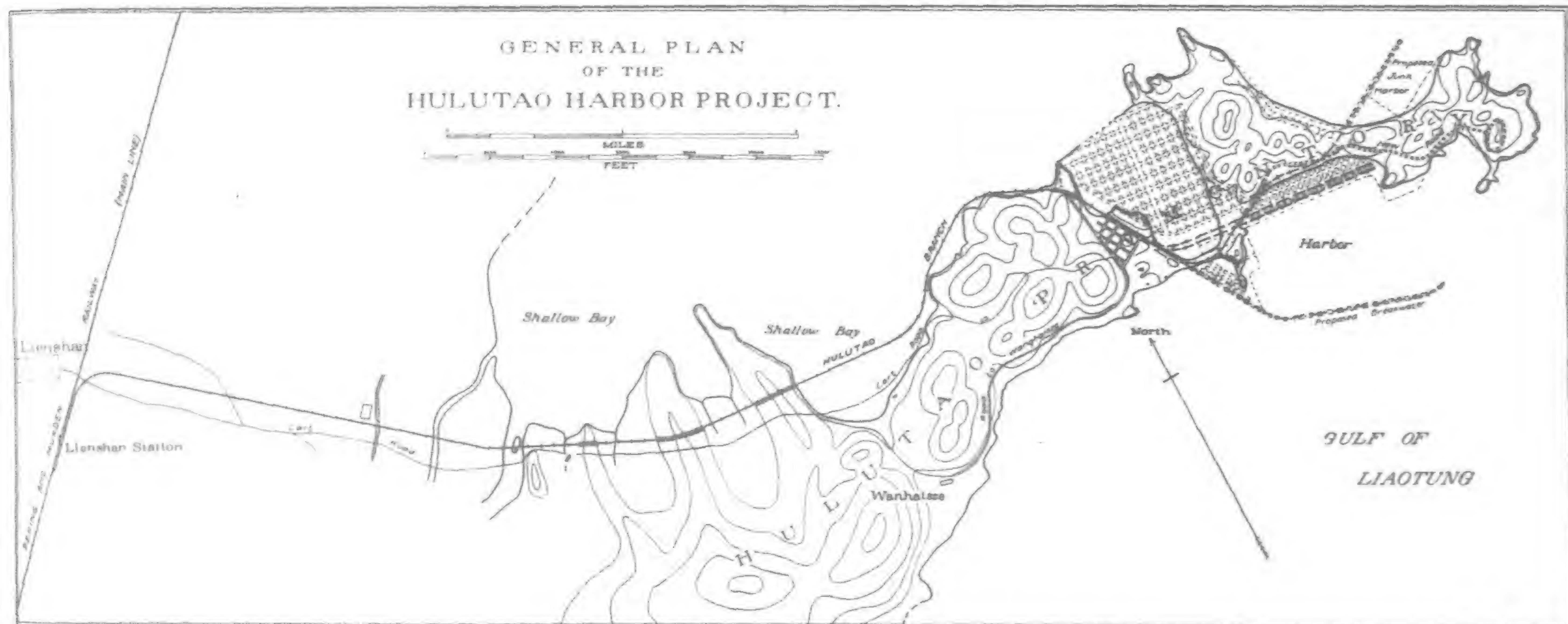
2. That a breakwater should be built to provide shelter from the southerly winds, to be so constructed that it would serve also as a wharf for the berthing of ships; to be made vertical on both sides so that in the event of the water freezing at any time inside the harbor ships could still come on the outside; the length to be 5,400 feet long, with a width of 100 feet to provide for the railway running to the extreme end, and to have a depth of 30 feet of water alongside for three berths of ships of 10,000 tons or over, and a total berthing accommodation for 14 ships.

3. The railway line to be continued the whole length of the breakwater with sidings to the different berths, the goods being deposited in godowns on shore, or made up in train loads for their destination as discharged.

4. The erection of a railway station at Hulutao, as well as store houses, engine sheds, and necessary houses and offices for people employed on the work.

GENERAL PLAN OF THE HULUTAO HARBOR PROJECT.

1 MILE
1000 FEET



round hills, the highest being 400 feet in altitude. It takes its name, Gourd Island, from a fancied resemblance to the shape of a gourd—or Hulu.

On the northern side the water is shallow, but sheltered from the strong southerly winds of summer by the hills. On the south side of the promontory the water is deep with a uniform mud bottom. It is exposed, however, to the full force of the summer winds, but is sheltered from the north, the direction of the prevailing winter winds. It is here in the south side of the promontory that the harbor should be located for, with a breakwater to shelter it from the rough winds and seas, large vessels could lie alongside the wharves in perfect calm. On the north side of the promontory where the sea is always calm accommodation could be made for smaller vessels and junks.

With all the advantages which Hulutao presents, and considering the dearth of essentially Chinese ports on the coast of China, it is a matter for great surprise that the Government does not apply itself in earnest to the not difficult or over-expensive task of making Hulutao the chief port in the north. Already much work has been done, but for some inexplicable reason the Government appears to prefer to allow that to go for nought rather than continue it and so secure one excellent harbor of its own from which could be handled the great trade possibilities of the wealthy region for which it should be the outlet.

In August of 1908 a project to create an adequate harbour at Hulutao was seriously considered, the then Governor of the Province instructing Mr. W. R. Hughes, M. Inst. C. E., who was connected with the building of Chinwangtao harbor, to make an examination of the coast from Yingkow to Shanhaikwan with the object of finding, if possible, a suitable place for a harbor for the accommodation of the Manchurian and part of the Mongolian trade. Hulutao was brought to the attention of Mr. Hughes as a likely place, which, among others, had been visited by a Customs cruiser in 1906 and a rough chart then made of it, and after an examination of the coast he reported, in September, 1908, that Hulutao

5. A building for an hotel to be erected to provide accommodation from the beginning of work for the convenience of travellers, people entering upon businesses at the port, employees of the harbour works, or the convenience of officials visiting the place, for all of whom there might be no other accommodation.

6. The erection of coolie barracks of a permanent nature for the use of workmen and afterwards for cargo coolies working in the harbor.

7. The building of roads connecting Wanghaisze with Hulutao and for access to the promontory.

8. The reclamation by an embankment across a mud flat of a large area of land which would admit of streets and roads being laid out upon it and the high land to the west.

The estimate for the breakwater and railway was \$4,514,920, and the buildings were sanctioned from time to time as necessity arose, but were not included in that amount.

Actually, only one year's work was carried out, but during that time considerable progress was made. A cart road from the Peking-Moukden railway to Hulutao was repaired at the outset, and the railway from Lienshan to Hulutao was then undertaken. The difficulties of making a railway in any direction to the harbor appeared at first sight to be formidable, owing to the hilly nature of the coast and its deeply indented bays, but a feasible way was finally decided upon by cutting across an arm of the sea for a distance of 4,000 feet and then closely following the coast line.

The railway as now constructed is of standard gauge like the Chinese Government Railways and is laid with 60 lbs. rails.

It leaves Lienshan on the East of the station, starting with an embankment 18 feet high which the Peking-Moukden railway have raised for a station yard in connection with Hulutao, with space for five lines of sidings and a turntable. It then curves to the southwards with a curve of 1,500 feet radius and runs through flat country with embankments about eight feet high crossing two rivers 110 and 180 feet wide on temporary



HULUTAO.—Employees' Houses.

bridges of Oregon pine timber. The culverts are built of rubble in cement mortar with concrete arches.

At 20,000 feet from Lienshan there is a cutting 1,200 feet long and 34 feet deep at its deepest part. It is through rock of varying hardness, but most of it of a soft description.

After another 2,200 feet of low embankment there is another rock cutting 1,100 feet in length, by 28 feet deep. After this there is a stone embankment 15 feet high and 4,000 feet long crossing an arm of the sea, and for 6,500 feet more a stone embankment through the edge of the sea curving along the coast, till at 35,300 feet from Lienshan a cutting 40 feet deep and 720 feet long is met with. This is for the most part through extremely hard quartzite which caused much labour to work through.

Beyond this cutting, in the direction of Hulutao there is another stone embankment 900 feet long and 19 feet high and then a final cutting 1,430 feet long and 32 feet deep which is also through hard rock.

Hulutao station site is reached at $7\frac{1}{2}$ miles from Lienshan, where there is a platform some 500 feet long 1,500 feet from the shore end of the breakwater.

The steepest gradient rises 1 foot in 100 for a short distance and this could have been reduced very much but it did not seem worth the expense in view of the steeper gradient on the Peking-Moukden line between Ning-Yuen-Chow and Kao-Chiao. The sharpest curve is 1,000 feet radius.

The two bridges will sooner or later have to be replaced by steel girders and the ballast requires to be broken up to a smaller size—otherwise the line is complete excepting the station house and yard at Hulutao.

The rolling stock consists of two small engines of 15 tons weight each and one of 30 tons, besides 24 ballast wagons of 15 tons each, and a railway carriage for first and second class passengers. These are only intended for the purposes of construction.

At Hulutao there has also been built a temporary engine house, a store house for machinery, etc., and a small general store besides a small blacksmith's workshop and a cement store.

The sea wall along the shore between the end of the breakwater and the rocky coast line is for reclaiming land required for office buildings and workshops and as a protection to the end of the railway line itself as it approaches the breakwater. It makes a final and secure connection between it and the rocks forming the main land. There being so little level land at Hulutao advantage has been taken of every opportunity for reclamation in laying out the works.

The wall is founded on rock or on concrete blocks sunk eight feet into the beach below low tide. A part of it received some damage from being left unfinished when the works were first suspended, but it has since been made secure and the defects will not be apparent when the work is complete.

These blocks are 30 feet long and contain each of them 100 tons of concrete made with Tangshan Cement. The wall where finished is 18 feet high, and 580 feet of it is in various stages of completion. The upper part is made as a hollow subway 4 feet 6 inches wide and 6 feet high to give convenience for fixing water pipes, electric light wires, etc., which will subsequently be required. Some 180 feet of this subway is made to finished level. Though this wall is at an angle with the general direction of the breakwater it should really be considered as part of it as it is continuous

with it and the construction is the same, but is subject to even rougher seas.

The first part of the breakwater now under construction has a length of 930 feet, 350 feet of it being sixteen feet high, 350 feet ten feet high, and the remainder five to six feet high.

It is built over a reef of rocks running outwards from the shore and is composed of concrete blocks of about 100 tons weight each, built in place and keyed together at the ends. In this and the sea wall just considered there is a total length of 1,530 feet and a total number of 117 such blocks which had nearly all to be built at low tide.

The north winds in the spring and early winter make these seasons the most favourable for this part of the work as the summer winds hold up the tide waters, and the rocks are then seldom uncovered, causing rougher seas to prevail. This part of the work has been necessarily slow in comparison with that on shore in buildings, etc., on account of the difficulty in transporting cement from Lienshan before the railway was built. The breakwater requiring a very large quantity of cement as compared with the other work had to wait till the railway was complete, cement for other purposes being brought down on donkeys' backs.

When work was commenced at Hulutao there was no place convenient to the works, on which to put buildings; the level ground was all on high hills or on a mud flat covered by the tide so that it had to be reclaimed from the sea at first by rock excavation and filling in order to get space for a small workshop and cement store near the breakwater. But since then a wider embankment 400 feet wide and 1,100 feet long has been made by filling in, so as to have working space on shore for present purposes, and it will be permanently required for the station yard, sidings, etc.

An embankment was commenced across the mud flat in order to reclaim it from the sea. The embankment when finished will be 2,500 feet long and 15 feet high by ten feet wide on top.

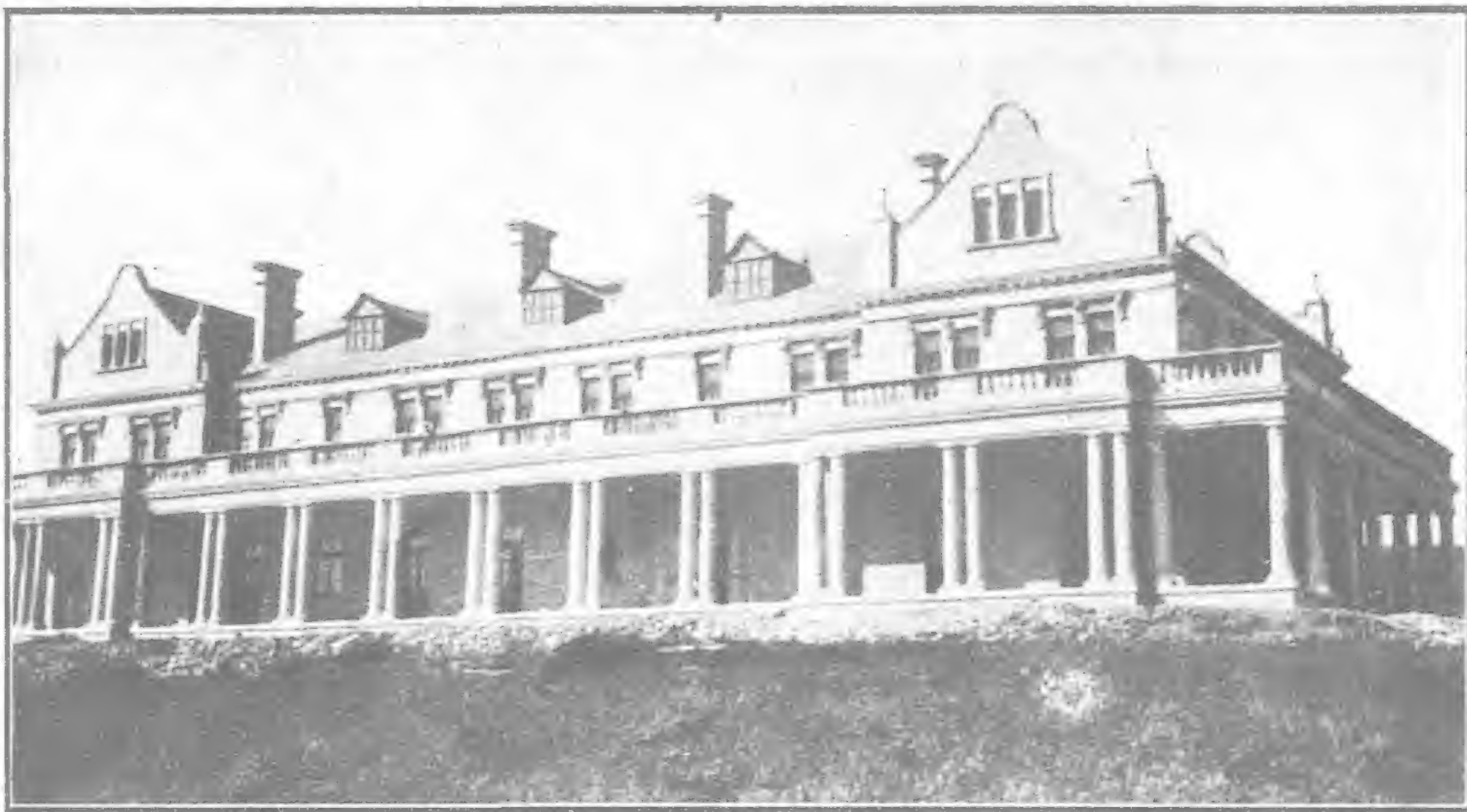
1,248 feet of it had been completed when the work was ordered to be stopped on account of the Revolution.

The object of the embankment is to exclude the tide from the mud flat and thus reclaim the land from the sea, when comparatively little filling will be required in order to make it suitable for building on. Approximately 2,000 mow will be reclaimed in this way and rather more than half the embankment required had been made when the work was suspended.

The land surrounding Wanghaisze village and that lying between it and Hulutao having been purchased by the Government for the purposes of Hulutao Harbor it was considered essential to build a road between the two places on account of

future development, as well as an alternative route to Lienshan. Without it the land was useless and almost inaccessible, and no use could be made of Wanghaisze village as living room for some of the workmen engaged at Hulutao. A good graded road has therefore been made, 20 feet wide in the centre portion which is finished and can be extended to 40 feet when required. It skirts the base of the hills for a distance of three miles from the coolie quarters at Hulutao to Wanghaisze village. Its picturesque situation will give sites for many private residences in the future and it is in itself an attractive feature of the port.

The land round Wanghaisze is suitable for bean mills or factories, which will, no doubt, be established in due course and a siding about a mile in length would join it to the Hulutao branch railway and so give it all the advantages of the port.



HULUTAO.—Front View of the Hotel.



HULUTAO.—Coolies' quarters on left and Employees' Houses on right.



HULUTAO.—Temporary Engine Shed and 30 ton engine.

As well as the road to Wanghaisze a pathway ten feet wide has been made along the face of the hills forming the promontory so as to give access to its whole length of two miles.

At first it was very difficult to walk along the promontory at all owing to the steep sides of the hills, and since tree planting was contemplated a pathway was a necessity. It has given access to many valuable sites for building lots in future.

The subject of water supply even for temporary purposes early forced itself on attention, and wells were sunk in several places, without very satisfactory results. It was soon found necessary to build storage reservoirs for rain water as the wells were insufficient. A large amount of fresh water was required for daily use of the workmen besides what will be required for the various steam engines when the works are fully developed.

The permanent water supply for the town of Hulutao will no doubt have to be brought from the Lienshan River some three miles away, but this will cost a considerable sum of money and take some time to carry out. For present need, therefore, it was decided to build in the first place a small masonry dam across a ravine on the Wanghaisze road for impounding rain water, and, with a suitable filter bed, get a supply for the workshops and offices and a water tank for the engines near to the breakwater. A tank 100 feet square and 20 feet deep has been thus made, but it is necessary to line it with concrete to prevent escape of water through the stratifications of the rocks.

Besides the tank just described a larger reservoir is in construction to the north-west of Hulutao to give water for general use at that end of the town. The bank is over 30 feet high and 446 feet long, and was nearly completed when the order was received for suspension of all work as explained.

As a large quantity of stone will be required for filling the breakwater and other embankments, it was necessary to prepare in time by making a railway siding along the face of the cliffs which were then only accessible at low tide. Accordingly the face of a small hill has been stripped on two sides, one for 1,000 feet long and 100 feet high, and the other 1,000 feet long and 25 feet high, and railway lines have been laid on each face so that the work of filling will go on quickly when the breakwater is sufficiently advanced to require it.

By the same operation level ground is being made for other parts of the project. As this work of preparation is tedious in itself and the rock could not be obtained without it, there was a distinct advantage to be gained by doing it while the initial stages of the work were in progress.

This has required a great amount of labour, as an embankment 1,500 feet long and 200 feet wide had to be made averaging 13 feet high, and a ravine on the west of it widened from 200 feet to 1,000 feet in order to get material to build it with, and to make space for surrounding buildings. As most of this entailed rock excavation, an idea can be formed of the amount of labour required.

One of the first things done on the work was to build temporary offices and stores, and accommodation for men injured, for the direction of all this work required a great deal of account keeping, drawing and other office work, and room had also to be provided where men injured by accidents could be nursed to recovery. Unfortunately owing to the large number of men employed there were many such cases owing to falling rock and earth, but they received careful treatment.

A store room also had to be built of an entirely temporary description as, till the embankments are completed, there is no convenient site at breakwater level. A small godown to hold 3,000 bags of cement was also built.

A small blacksmiths' shop was built where quarry drills and tools could be made and repaired. This building was made for three gangs of blacksmiths, besides fitters on roof iron work.

The construction of various permanent buildings was also undertaken and in making these, the principle kept in view has been to make them of a thoroughly substantial character so that they may be valuable property for all time and of a good architectural appearance. Owing to the scarcity and high price of bricks and difficulties of transport it was decided to make all buildings of hollow concrete blocks with Tangshan cement and the shingle and sand from the sea shore. This was found to be cheaper than brickwork here, and admitted of handsomer and more durable buildings being erected.

The coolie barracks were built of rubble stone and lime with galvanized iron roofs, and were in three buildings 180 feet long and 30 feet wide with berths in two tiers. They will accommodate 850 men with ease and a good many more by crowding. They are built with a view to disinfecting in case of epidemic. Steam was found to be the most economical for heating as the brick kang generally in use are by no means cheap to construct on a large scale, require constant renewal, and are costly to heat.

The buildings for Engineer's Office, the Chinese Officials' Office and Residence, and the Engineer's Residence are of two stories of concrete block construction and are of a handsome appearance. They are well built buildings of a permanent character in keeping with those which it is hoped the town will be composed of.

Eight houses for Chinese clerks and others to be employed on the works have been built, six of them in rubble stone and two of concrete blocks and they are model dwellings of their kinds.

A building for a hotel or Rest House has also been erected. It is of concrete block construction, contains 20 bed rooms besides 10 bath rooms and lavatory as well as a large dining room, billiard and bar room, reading room, ladies drawing room and private dining room. It has a verandah on the front and north sides and is fitted throughout with steam heating and properly arranged bath room and water fittings. It remains only to be decorated and furnished, and water laid on from the reservoir, when completed, in order to be fit for occupation. It will be very much required as a stopping place for passing travellers, and a living place for some of the employees of the harbour, and will be indispensable when steamers begin to come to the port. Even as a summer resort for people coming to stay by the sea, it should be profitable to put it in working order at once.

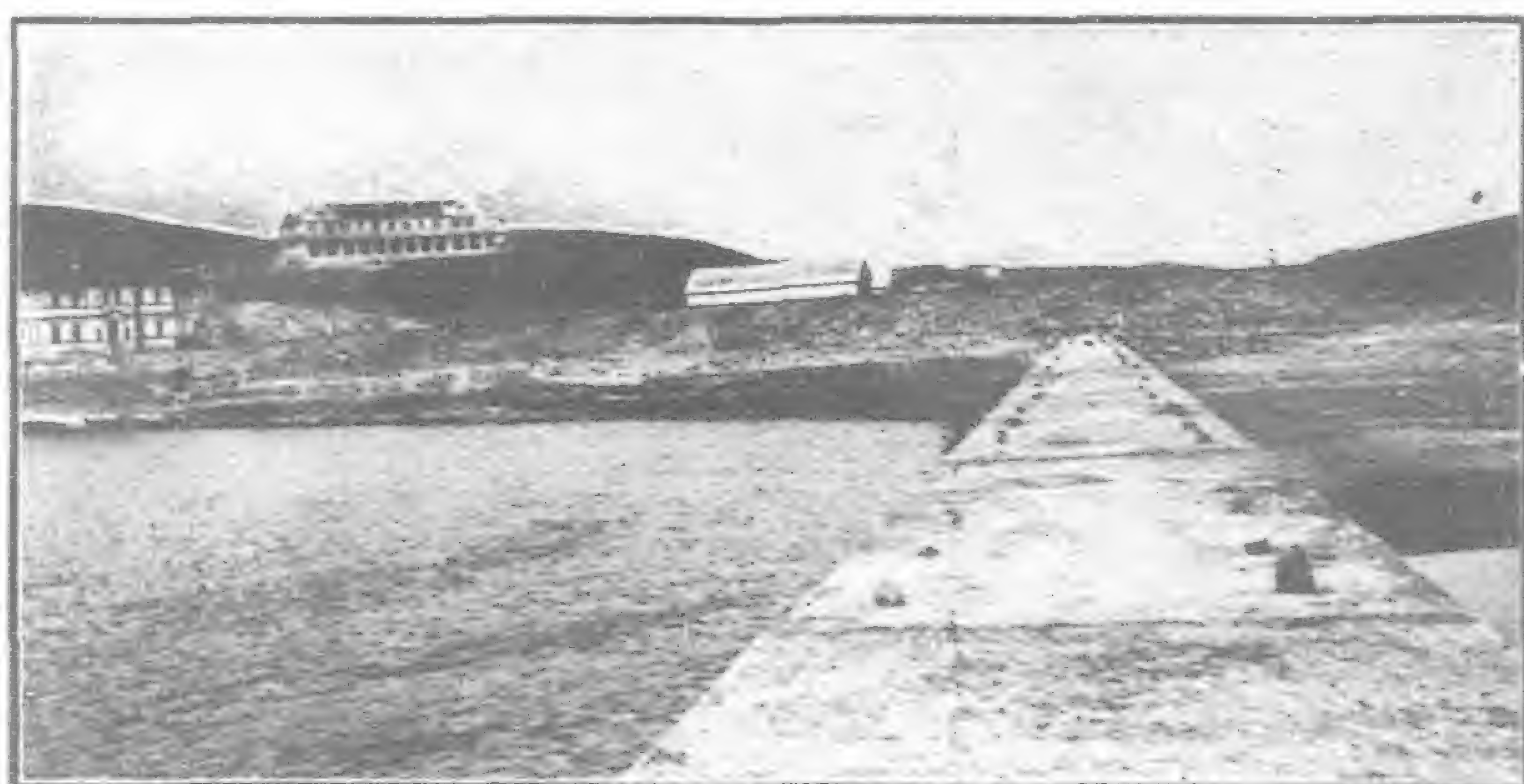
A line of 37 small concrete houses of one room each have been built for use as small shops or for pedlars, etc., as living rooms, in order to be able to keep such places in a sanitary condition and do away as much as possible with the unhealthy huts of mud and kaoliang stalks.

There have also been built of concrete five larger houses to be used as shops. Mr. Chas. Thunder was the architect for all the buildings.

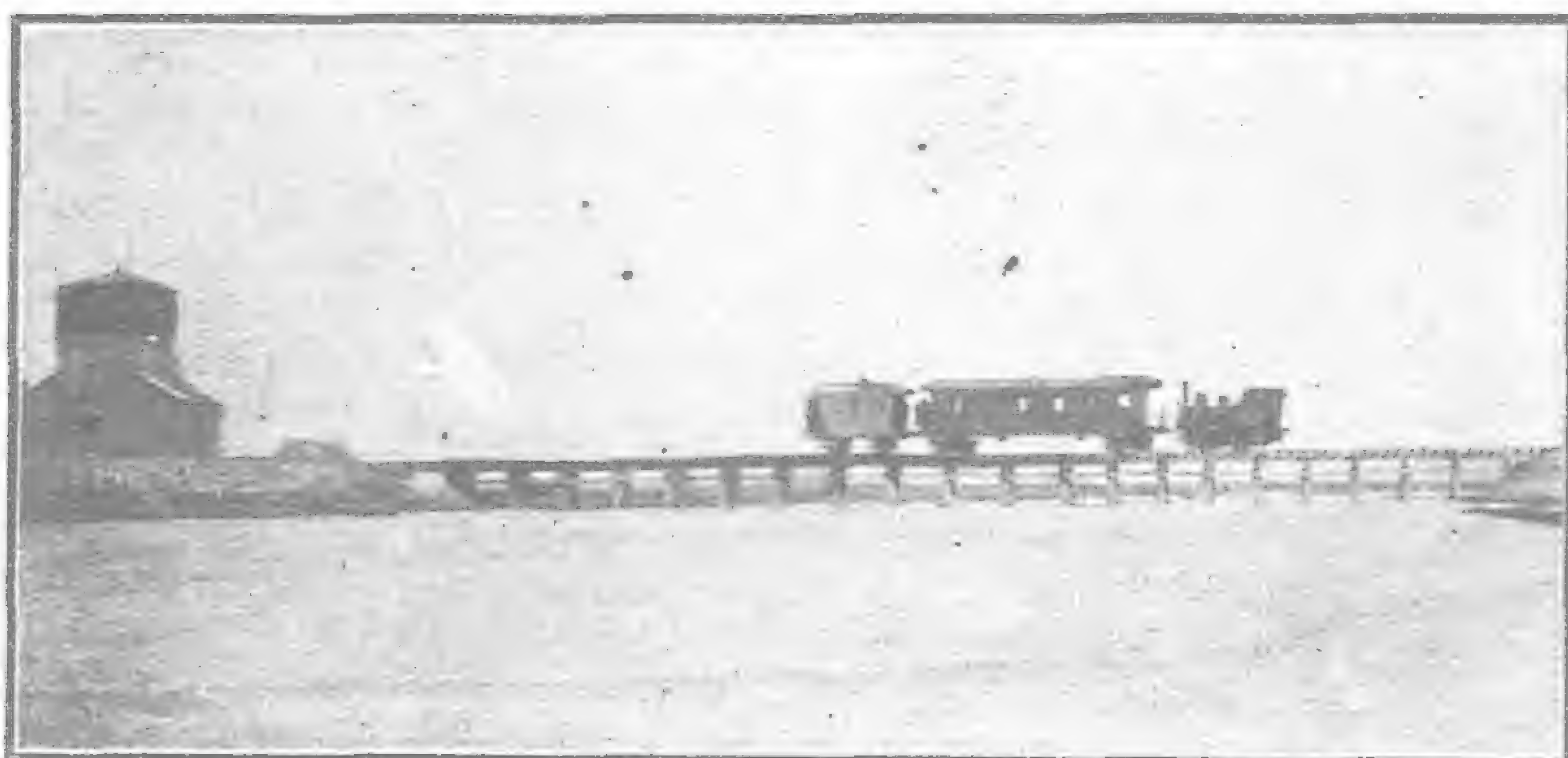
A commencement has been made with the laying out of streets on the high ground to the west of the mud flat. Owing to the hilly and broken nature of the ground and the rock met with close to the surface, it requires much labor to get this into condition for building lots of a town site.



HULUTAO.—The Engineer's Office.



HULUTAO.—View of the Hotel and Engineer's Office from the Breakwater.



HULUTAO.—Water Tank and Railway Bridge.

But with a little more work expended upon it, four very good streets will be available for the purpose.

A large quantity of young trees were planted, by the Forestry Department of Moukden, over the slopes along the Wanghaisze Road, on the promontory and along the railway line, but owing to the want of shelter from the winds they are not growing well except in a plantation on the north of the promontory.

Some machinery was bought in Hongkong which had been used in the dockworks there including two steam cranes, two stone breakers and a concrete mixer, besides two portable engines for working them. They are all in good order and stored under cover at Hulutao. Also a locomotive, a workshop engine and boiler, a lathe, planing machine, drilling machine and other small tools were imported from England.

A telegraph line to Lienshan station and a telephone line along the railway is also in working order as both are necessary to the proper working of the railway.

A rest house consisting of six small rooms in a compound has been built at Lienshan station where visitors may stay when waiting for the train from Hulutao. The telephone is also connected with it.

At Hulutao, near the Chinese Officials' house, police barracks have been built capable of accommodating 40 soldiers or police, with quarters for their officers and stabling for six horses.

The execution of the works enumerated above naturally necessitated a great deal of temporary work which it would be tedious to mention. Suffice it is to say that when the works were commenced here, a distance of ten miles by road from the railway station, there were no resources of any kind, not even fresh water, or huts that coolies could live in, and that in the year's work now under review the railway was made and that through somewhat difficult country, a good commencement was made to the breakwater, many permanent buildings were made that would be no discredit to any town, much embankment and reclamation work was done out of hard rock, quarries have been opened and much other work done which will greatly facilitate the completion of all the rest of the scheme. In a word, the preliminaries of the work of a great part have been done under difficulties, and all is of a nature that is good, solid, and enduring.

So far as it was possible to do so the heaviest part of the work was done by small contracts with rock contractors, etc., but a good deal of day labour was also unavoidable.

Accounts were rendered monthly, and vouchers and receipts obtained for every expenditure. The total sum expended at Hulutao on the works, up to the present, amounts to \$1,028,850.90, but this does not take into consideration the purchase of land or expenses defrayed direct by the Moukden authorities.

It was a misfortune that the works had to be suspended when they were going on so satisfactorily, for, the preliminaries having been finished, the construction of the breakwater would have gone on rapidly to the completion of the first steamer berth.

WATERWORKS IMPROVEMENT IN JAPAN

The laying of private waterworks was permitted by the Government for the first time in 1911, says a Tokyo paper, and continues:—The new field opened for private enterprises, however, has been unexploited since.

Now it is reported that in various localities waterworks are being laid by private companies. In Shinagawa, a suburban town, work was started last year by the town, and will be completed shortly. In Shinjuku and Oji, also in the suburbs of the city, private companies are being organized by the local business men for the laying of waterworks, each having a capital of 2,500,000 yen. The Government is reported to have also received petitions from Osaka and Odawara for the construction of waterworks. In Osaka a company with a capital of 1,000,000 yen has already been organized for the purpose of supplying water to the city, while in Odawara a company is also being formed by local business men with a capital of 60,000 yen. The authorities in the Home Office are reported to have approved the schemes and decided to grant charters to these companies.

SINO-JAPANESE INDUSTRIAL DEVELOPMENT COMPANY

It was announced in Peking on July 4 that the new Sino-Japanese Industrial Development Co. was registered at the Ministry of Commerce on June 22. It is called the Chungji Shihyen Yuh sien Kung tse and has a capital of \$5,000,000, equally subscribed by Chinese and Japanese in fifty thousand \$100 shares. The head office of the Company is in Tokyo, but the general business bureau will be in Peking, with a branch office in Shanghai. There will be one Director-General and one Vice-Director

General, who will be assisted by two Managing Directors.

No shares will be permitted to be sold to people of other nationalities than Chinese and Japanese. The Company will undertake to investigate industrial enterprises and the introduction of capital with which to work them, to finance industrial affairs directly and indirectly, to issue loans and attend to all other financial business. It disclaim any connection with, or responsibility for the former Sino-Japanese Trust arranged by Dr. Sun Yat-sen.

According to Chinese reports a high Chinese official will become Director-General of the Company, whilst Baron Shibusawa

will be Vice-Director-General. The latter will depute a Japanese member of the Board to act for him. The Shanghai office will be managed by Chow Ching-chien, with Japanese associates.

The Japanese Legation, however, denied that Baron Shibusawa is a Vice-President of the new Sino-Japanese Industrial Development Co., but states that Mr. Karachi has accepted that post.



HULUTAO.—Coolies' Quarters.



HULUTAO.—Embankment crossing an arm of the sea.

RAILWAY DEVELOPMENT IN MID CHINA

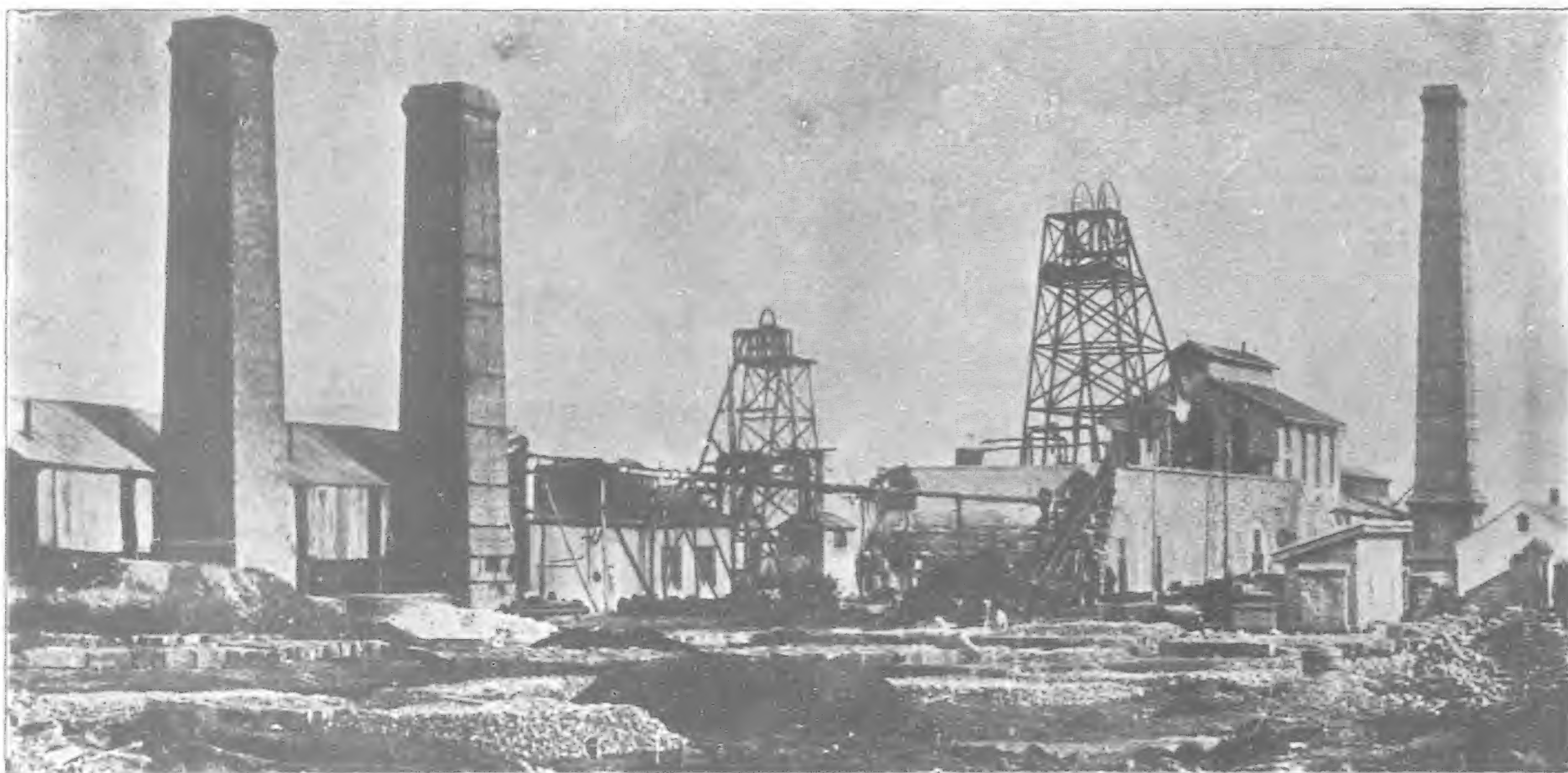
THE QUESTION OF EXTENDING THE TAO-CHING RAILWAY.

In the last issue of the FAR EASTERN REVIEW reference was made to the decision which has been arrived at by the Chinese Government to, among other things, connect the Tientsin-Pukow (Tsin-Pu) railway with the Peking-Hankow (Kin-Han) railway, the capital to be employed to be derived from German financial sources.

In the agreement which has been come to between the Chinese Government and Germany in this connection it has been

to the west, combined with the fact that the Tao-Ching railway exists, and labors under certain disadvantages for want of further extension, calls attention to the necessity of China pursuing a policy calculated to co-ordinate her existing railway systems and bind them by judicious connections into as complete and effective an organ of communication and development as possible.

It is permissible therefore to examine the situation in the region affected by the decision of the Government to provide an



TAO-CHING RAILWAY.—Jamisen Colliery.

specified that the line shall strike off from the Tsin-Pu railway at some point on the north of the great bridge crossing the Yellow River, near Tsinan-fu, the capital of Shantung province, but the route westwards to the Kin-Han railway has been left to be decided by a survey. There are two points of junction with the Kin-Han line under consideration, one near Changteh-ho—distinguished as the provincial home of President Yuan Shih-kai,—and the other the city of Taokow, where

outlet to the sea at Tsingtao for traffic from the northern part of Honan, with particular reference for the call that exists to connect the Tao-Ching railway with others which will enable it to become a generally useful and paying concern.

In the map which we publish in connection with this article the relation of the line with other systems will be seen at a glance, and furthermore it will be observed that the logical course for the Government to follow will be to utilise it as a means of



TAO-CHING RAILWAY.—Loading a Coal Train.

terminates the railway connected with the Peking Syndicate mines. This railway joins Taokow with Chinghua, crossing the Kin-Han railway at Hsinghsiahsien, and was originally built with the restriction that it should carry coal and cargo but no passengers, a hampering condition which the Chinese Government ultimately deemed it wise to remove.

The fact that the Government has now entered into an agreement to connect up the Shantung railway system with that

reaching both the Tsin-pu railway on the east and the proposed line from Tatung through Taiyuanfu to Sianfu in Shansi province, on the west.

The question of the extension of the Tao-Ching railway is not a new one. It has been deemed necessary from the time the existing line was completed, and surveys have been made to ascertain the feasibility and advisability of extending both east and west. The results of those surveys clearly indicate that it is



TAO-CHING RAILWAY.—China-Hua Station.



highly desirable both from the point of view of the ultimate success of the Tao-Ching Railway and also for the opening up of the country between Taokow and the Tsin-Pu railway, where, at the moment, no means of communication exist.

While the survey was being made inquiries were instituted as to the possibility of the opening up of the country through which the proposed line would travel, and it was ascertained that there exist important centres for cloth, cotton, wool, hides, wheat,

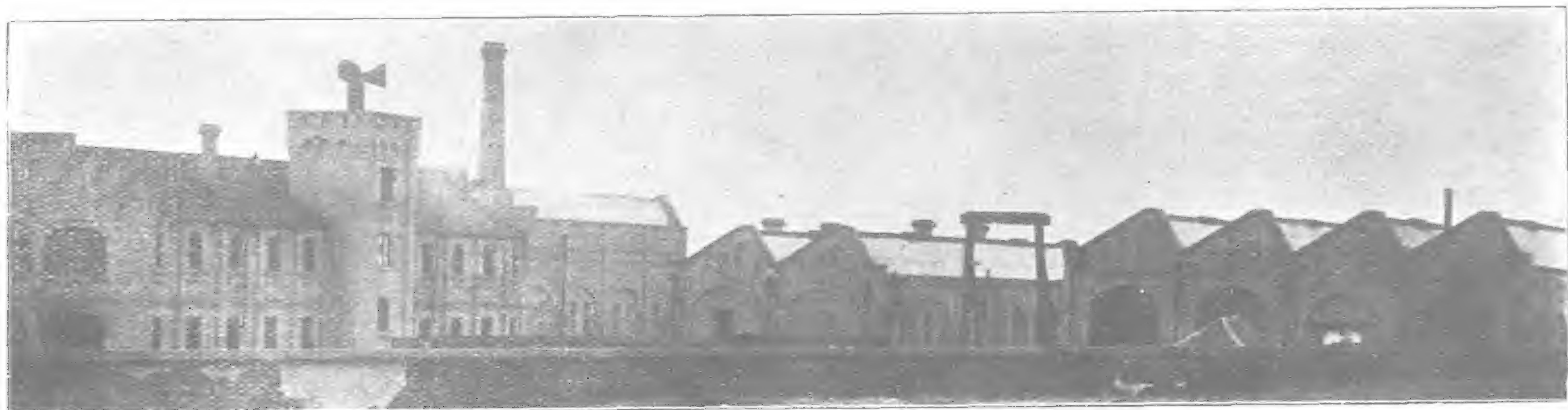


TAO-CHING RAILWAY.—Coal Trains.



It has also been ascertained that an extension from Taokow through such important centres as Kaichow, Tungchangfu, and various other busy Chinese towns and cities, to, say, Tsiho, a point immediately north of the Yellow River, on the Tsin-Pu

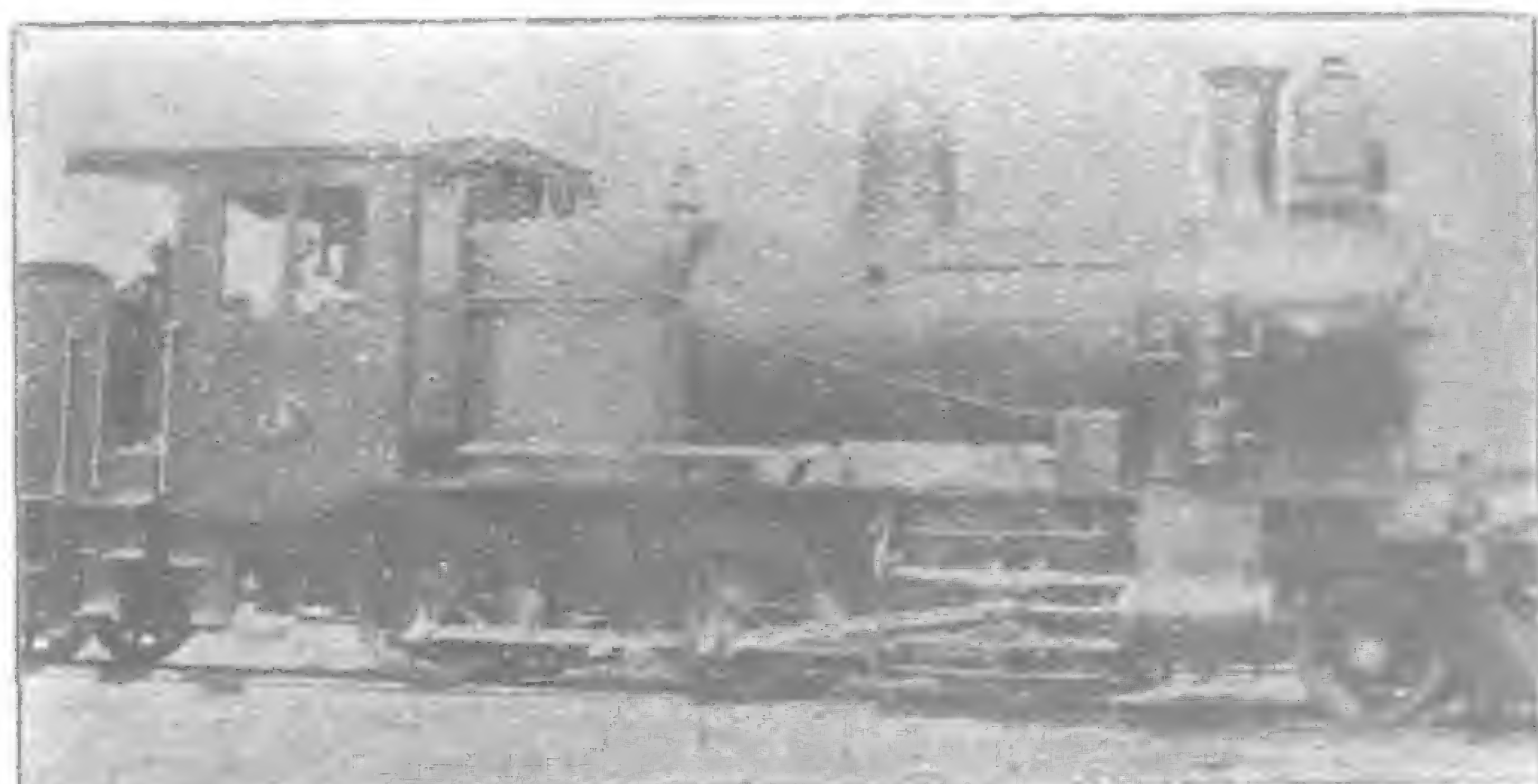
and peanuts, and also large quantities of straw-braid. It was also ascertained that at Tungchangfu the product from such important centres as Kuanchang, Nanli, Chaochang, Shinhsien, and Tangyi is collected before being sent to Tsingtao for export.



TAO-CHING RAILWAY.—Car and Locomotive Shops.

railway, would be, in the first place, desirable from the point of view of construction. The country is very flat, and the absence of large waterways places it in the favourable position of having a minimum number of bridges to construct.

Under existing conditions the transport facilities from Tungchangfu are limited to the very small waterways between that place and the Yellow River; the Grand Canal having been closed to navigation for many years, and this fact alone must of



TAO-CHING RAILWAY.—Types of Locomotives.

necessity retard the trade to a considerable extent. The total trade per annum in straw-braid alone amounts to Tls. 1,000,000. This information was furnished to the Engineer of the Tao-Ching railway by the Chamber of Commerce at Tungchangfu, and he was assured that should the line be extended to the Tsin-Pu railway this figure could be very considerably increased. The inhabitants in the districts concerned are, too, naturally anxious

65,000 tons in 1905, to a figure in the neighbourhood of 500,000 tons in 1913, while other goods have increased from 22,000 tons in 1905 to 43,000 tons in 1913.

The passenger traffic also is of importance. In 1905 the number of passengers carried amounted to 48,900 while in 1913 they numbered 221,000. Naturally the connecting of two main trunk lines such as the Peking-Hankow (Kin-Han) to the Tsin-Pu



TAO-CHING RAILWAY.—Sin-Siang-Sien Station.



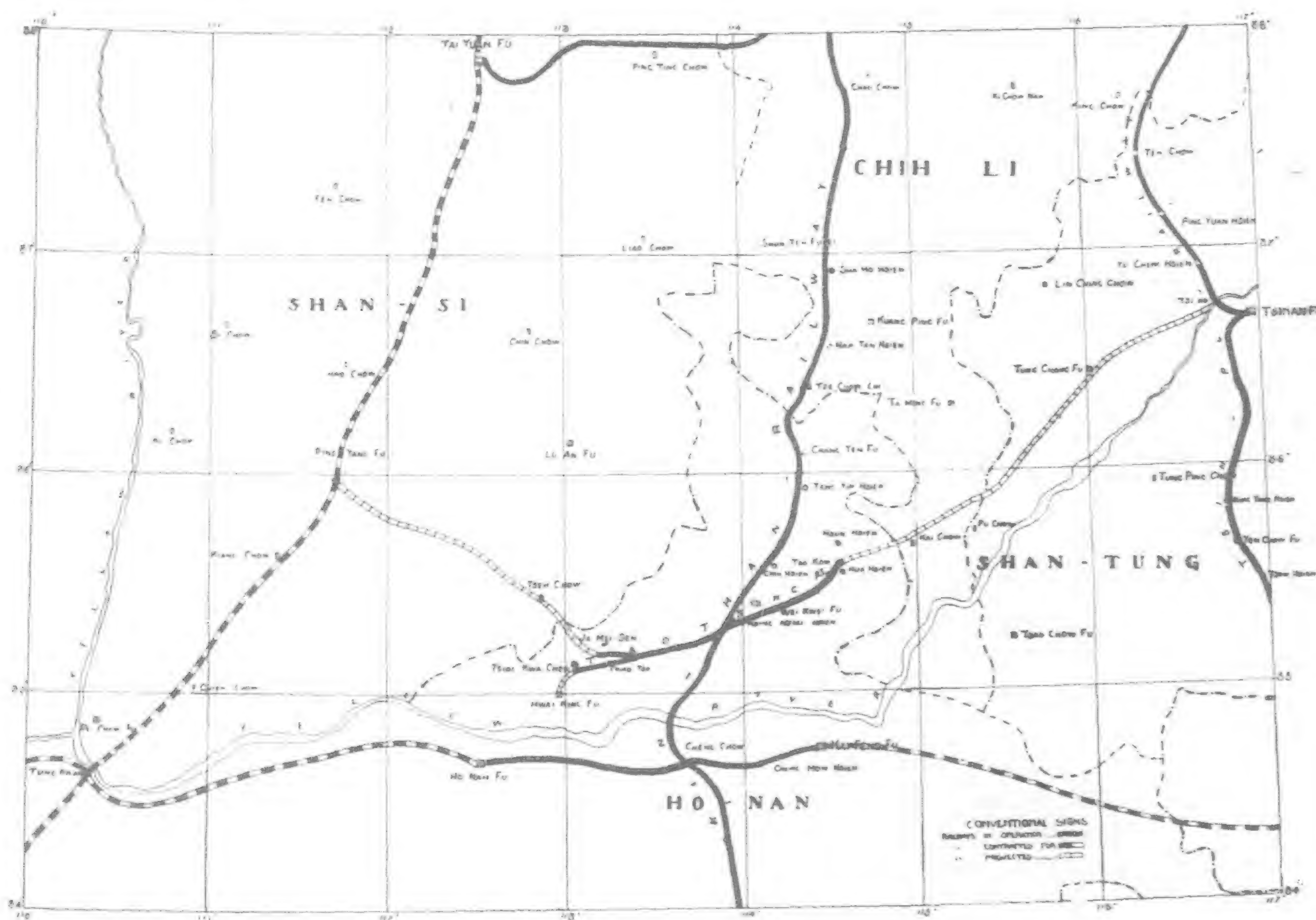
TAO-CHING RAILWAY.—Shop and Water Tank.

for this railway to be built, though the officials at the moment are preparing estimates and devising means to dredge the Grand Canal to Lintsingchow as a remedy for the falling off of trade in these important centres.

In addition to the revenue which such an extension would derive from the districts it actually touches, there would be a proportion of the existing traffic on the Tao-Ching railway which would traverse such an extension, and further the coal mines in the district of Weichingfu would supply a considerable

railway would have a very important bearing on the passenger traffic receipts. In extending the line, too, the proportion of administrative expenses per mile would be considerably reduced.

It is interesting to note that in 1905 the total receipts of the existing Tao-Ching railway amounted to Tls. 83,500, while the expenditure amounted to Tls. 75,000; in 1913 the receipts reached Tls. 370,000, the running expenses amounting to Tls. 277,000. Therefore, should the suggested extension be carried out it may safely be assumed that the immediate receipts would be some-



Sketch Map showing the proposed extensions of the Tao-Ching Railway.

amount of additional traffic. From detailed inquiries made it is estimated that from Taokow onwards markets could be found for an additional 500,000 tons of coal per annum. This in itself would provide very satisfactory returns for the extension alone and would more than double the coal traffic on the existing railway. Such returns are in no way problematical. The amount of coal transported on the present Tao-Ching railway has risen from

where in the neighbourhood of Tls. 750,000 per annum, with running expenses not exceeding Tls. 400,000. These results coupled with the traffic which is certain to be derived from the two main trunk lines mentioned should place the Tao-Ching railway on a paying basis within a very short time.

It has from time to time been suggested that the Tao-Ching railway should be extended in a westerly direction into Shansi,

and surveys have been made with this object. In view of the proposed railway between Tatung and Chengtu crossing the Yellow River at Tungkwan it would appear to offer an excellent opportunity to extend the Tao-Ching Railway to link with this new line. The proposed railway from Tatung, passing through Shansi, would be feeding the Tao-Ching railway with a considerable amount of traffic from the mines in that Province, and this, coupled with the fact that the westerly portion of Honan, which the Tao-Ching railway passes through, is one large coal field, producing something like 1,000,000 tons a year, would undoubtedly soon place the Tao-Ching railway on a paying basis. It is certainly a fact that the limited sphere of the Tao-Ching railway seriously hampers the production of coal in the Honan field, and the above figures could be more than doubled with the extension of the railway as suggested.

The Tao-Ching railway is of standard gauge and was built by Messrs. Pearson & Son for the Peking Syndicate, Limited. A concession was obtained in 1898 to build the railway, and work was commenced in 1900. The Boxer outbreak caused a suspension of construction and a resumption was not made until 1902. On July 24, 1904, the line was opened for traffic, the distance being 90.39 miles; since that time it has been extended to a length of 93.21 miles. There is also a branch line of 1.11 miles in length. The cost of construction is set down at £614,600.

The railway was built expressly for the purpose of carrying coal from the mines of the Peking Syndicate at Jamisen to the Hwai river at Taokow. No provision was made at the time of opening for the carrying of passengers, but as time went on the restriction against the line in this respect was withdrawn and passengers gradually availed themselves of this means of transport, covered goods wagons being used for the purpose of carrying third-class passengers, while two first and second-class composite carriages were purchased from the Peking-Mukden line. Two years ago a new train was built at the Works connected with the line, the passenger carriages having been made up from under frames of goods covered wagon tops.

The traffic consists of local passengers travelling from station to station, principally third class, and goods consisting of

salt, bamboo, ginger, tobacco, iron, kerosene and general mixed merchandise and coal. One passenger train runs each way daily, and one coal and goods train daily for the full length of the line, while two coal trains travel half the length of the line per day. There are no long or fast runs the passenger trains being timed at 25 miles and the goods and coal trains at 18 miles per hour.

The line is through country which is perfectly flat, with no tunnels, and only one bridge of any size, viz., eleven 20ft. and four 30ft. spans. Altogether there are 176 other small bridges and culverts, the total length of waterway being 3,197.5 ft., or 34.2 ft. per mile. The rails used are 75 lbs. per yard and are flat bottomed. They are fastened with spikes to Japanese sleepers.

The total receipts for 1912 were \$556,437, the expenditure being \$457,112, (excluding interest amounting to \$401,000), passengers contributing \$101,772 and freight \$454,665. The number of passengers carried totalled 246,156, and the freight amounted to 513,875 tons.

The foreign staff on the railway consists of the Manager and Traffic Superintendent, the Locomotive Superintendent,

the Engineer of Way and Works, and the Accountant and Storekeeper. The native staff consists of 1,080 men, including Government representation of about 10 men.

The rolling stock consists of ten locomotives, 161 wagons and 24 passenger and other vans.

Locomotives—Six Tender (goods) 2-6-0 coupled bogies; cylinders 18in. diameter \times 24in. stroke. Wheel base—rigid, 14ft.; total 22ft. Weight 95 tons.

Two tank (shunting) 0-6-0; 40 tons; cylinder 16in. diameter \times 22in. stroke. Wheel base 12ft. 6in.

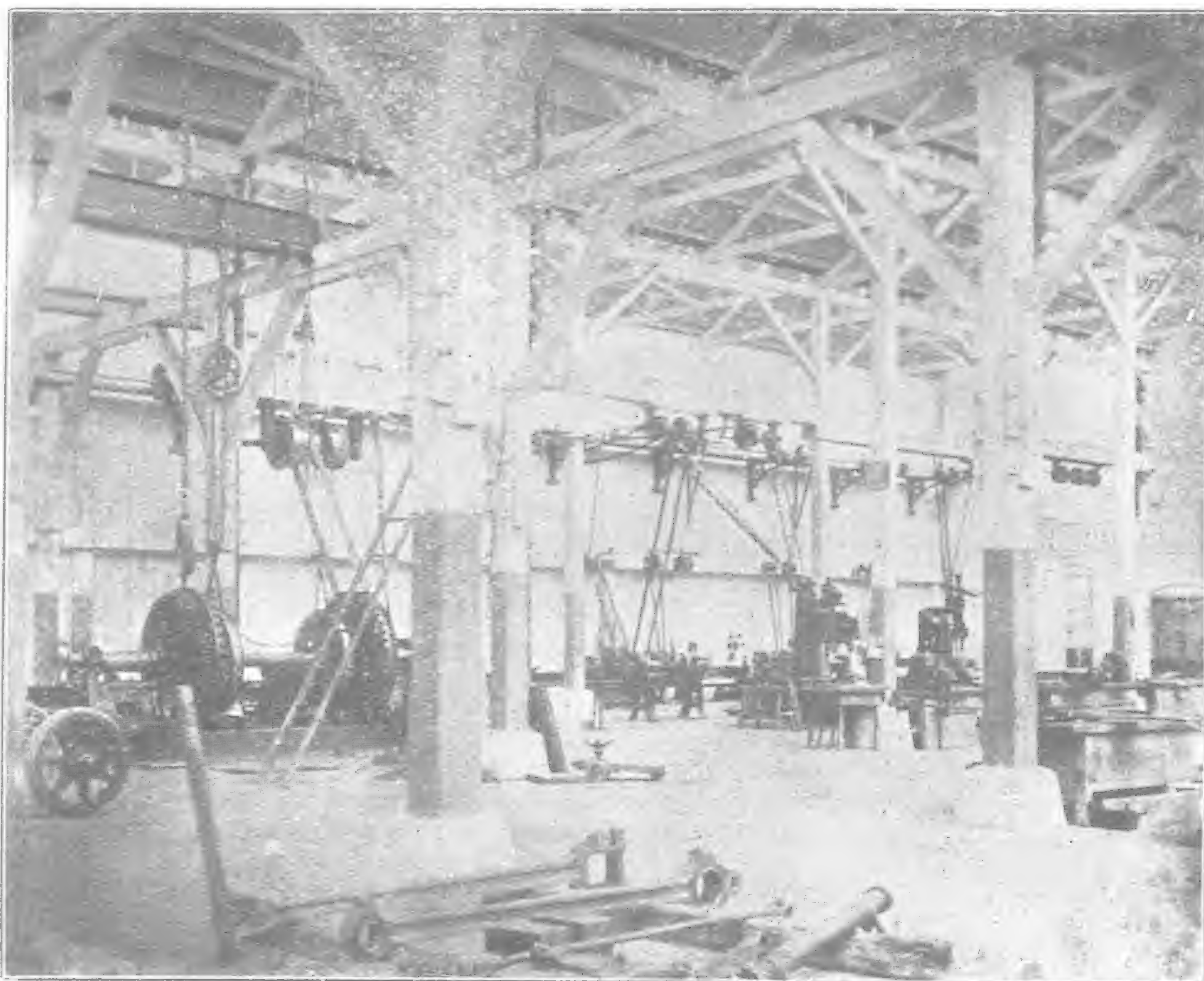
One tender (passenger) 4-4-2; 120 tons.

One tank small tender (shunting) 0-6-0; 45 tons.

Coaching vehicles—2 1st Class Cars; 2 1st and 2nd Composites; 2 Second class; 4 Brake vans; 1 Luggage Van (and Postal); 9 3rd class; 2 3rd and Brake Vans Composites; 5 Pony Cars; 1 Inspection

Car; 1 Brake down Van; 3 Flat wagons; 8 Low sides; 18 12 tons high side coal trucks; 125 30 tons high side coal trucks; 6 Covered goods 30 tons; All 4 wheel bogies except 12 tons and Brake down van, they being 4 wheels (2 Axles).

arriving at Tientsin Central Station at 10.35 p.m. on Tuesdays, the following arrangement came into force on June 23:—On arrival of the up Express from Pukow at Tientsin Central Station first class through passengers for Peking, if they choose to do so, may stay over night on board the car in the same berth occupied by them during the journey on payment of a charge of 2.00; but they have to leave by all means not later than 8 o'clock the next morning.



TAO-CHING RAILWAY.—Interior of Machine Shops.



TAO-CHING RAILWAY.—Locomotive Shops.

EXPRESS SERVICE SHANGHAI-PEKING VIA PUKOW

Messrs. Thos. Cook and Son inform us that for the convenience of through passengers to Peking travelling by the Pukow-Tientsin Express

MR. YANG TCHENG

The recent conclusion of an agreement whereby the area policed and controlled by the authorities of the French Concession at Shanghai has been extended gives ground for hope that the question of the extension of the International Settlement will also shortly be solved. The negotiations on the Chinese side are in the hands of Mr. Yang Tcheng, Special Envoy for Foreign Affairs, whose photograph we reproduce on this page. Mr. Yang Tcheng took up his duties in Shanghai early in November and at once established himself in the good graces of both the foreign and Chinese Communities. He brought to his local labors ripe diplomatic experience obtained elsewhere, and this coupled with broad tolerance and sympathetic understanding has enabled him to emerge successfully from the delicate negotiations in which he has constantly taken part since his arrival.

Mr. Yang Tcheng spent six years in Japan when he was very young and later studied for a similar period at the Tungwen College at Canton. Thence he went to Germany as a student and finished his education at the Leipsic and Berlin Universities. While in Germany he devoted himself principally to studying law and military tactics. Returning to China in 1900, just before the Boxer Outbreak, he



Mr. Yang Tcheng, Special Envoy for Foreign Affairs at Shanghai.

became Professor of German and of Law at the Peking University under Dr. Martin. A period was put to his usefulness in this sphere by the troubles and he went to Shantung, where he became Secretary in the yamen of Yuan Shih-kai who was then Governor.

When Prince Chun (afterwards the Prince Regent) went on his mission to Germany, he was accompanied by Yin Chang and the latter's position of Secretary to Prince Ching and Li Hung-chang was taken by Mr. Yang Tcheng. Subsequently he returned to Shantung, was given the rank of Taotai and filled the position among others of Director of Foreign Affairs, Director of Mines, and Director of Railways. Late he was made Chinese Minister to Vienna where he served for two years. He was then transferred to the post of Minister at The Hague and Berlin. He returned to China on account of family mourning and lived privately in Canton for some time. When Viceroy Chang Jen-chun went to Nanking Mr. Yang Tcheng accompanied him as Chief Adviser on Foreign Affairs, Commerce and Military Administration. After the Revolution Mr. Yang Tcheng went to Tsinanfu where he became Chief Adviser to the Governor with the title of President of Foreign Affairs. Later he filled the position of Commissioner for Home Affairs in Shantung.

The Government's appreciation of Mr. Yang Tcheng's services has been shown by the bestowal of the second class order of the Chiaho.

FAR EASTERN RAILWAYS

CHINA

Shanghai-Nanking Railway—The following figures of traffic returns (approximately) for the week ended June 27 are issued by the Shanghai-Nanking Railway:—

Year.	Passen- gers.	Goods & Sundries.	Total for the week.
1914....	\$ 44,802	\$ 10,555	\$ 55,447
1913....	42,411	13,677	56,088
Increase.	2,481	—	—
Decrease	—	3,122	641

For fifty-two weeks.

Year.	Passen- gers.	Goods & Sundries.	Total
1914....	\$ 2,525,206	\$ 553,041	\$ 3,078,247
1913....	2,264,743	514,646	2,779,389
Increase.	260,643	38,395	298,858
Decrease	—	—	—

Week ended July 4, (the first week in the 1914-15 fiscal year).

Year.	Passen- gers.	Goods & Sundries.	Total for the week.
1914....	\$ 44,651	\$ 11,750	\$ 56,401
1913....	43,766	12,319	56,085
Increase.	885	—	316
Decrease	—	569	—

Week ended July 11.

Year.	Passen- gers.	Goods & Sundries	Total for the week.
1914....	\$ 42,705	\$ 12,757	\$ 55,462
1913....	41,753	11,024	52,777
Increase.	952	1,733	2,685
Decrease	—	—	—

For eleven days.

Year.	Passen- gers.	Goods & Sundries	Total for the week.
1914....	\$ 66,848	\$ 10,102	\$ 85,950
1913....	67,012	18,172	85,184
Increase.	—	930	766
Decrease	164	—	—

Week ended July 18.

Year.	Passen- gers.	Goods & Sundries.	Total for the week.
1914....	\$ 42,205	\$ 11,723	\$ 53,928
1913....	54,840	10,955	65,795
Increase.	—	768	—
Decrease	12,635	—	11,867

For three weeks.

Year.	Passen- gers. \$	Goods & Sundries. \$	Total. \$
1914....	109,053	30,825	139,878
1913....	127,854	30,778	158,632
Increase.	—	48	—
Decrease	18,801	—	18,754

Chefoo-Weihsien Line.—What is described as one of the largest and most representative meetings known in Chefoo was held on April 21st to further the agitation for the speedy commencement of the Chefoo-Weihsien railway. Mr. J. Howard Stooke, chairman of the Chamber of Commerce, who presided, said that the value of the breakwater, which might now be regarded as assured, would be much lessened were the connection of Chefoo with its hinterland not secured. The breakwater and the railway were two parts of one scheme. The Chairman announced that the Chinese Community was memorializing the Government about the railway and it was suggested that the foreign community should memorialize the Diplomatic Corps at Peking. The meeting unanimously approved of this being done.

Canton-Hankow Railway.—The Canton Correspondent of the *N.-C. Daily News* gives the following account of the progress made with the construction of this line:—

The Kwangtung part is to be constructed from Canton to P'ingshek on the borders of Hunan province. During the early months of the year it was opened as far as K'onghau but it is promised that shortly it will be opened as far as Ushek. There will then be something less than twenty English miles beyond this before the line reaches the district city of Shiuchow.

Meanwhile, this part of the line is delayed only because there are one or two small tunnels to be bored through; but navvies are at work on them, and it is believed that by the end of the year, the trains will be running all the way from Canton to this district city,—about three hundred miles. Whilst these tunnels are being bored, stations have been erected, and also ways opened between the several stations and the river, as well as between the stations and the towns. It is unfortunate that so frequently the stations are planted so far from the cities, but it must be assumed that this could not be helped.

The line between Shiuchow and Lokch'eung is partially laid, according to this report, but there are at least six bridges to be constructed, and these will take some little time to erect. In most cases the foundations of these bridges have been laid, and so the most difficult and important part of the bridge building has been accomplished. It is believed that at no distant date, the line will be opened as far as Lokch'eung. Beyond this, the line has been surveyed, even as far as Pingshek. Until there is some hope of progress on the Hunan side, so that the two provinces may be joined, there is not much need to be specially disturbed by dilatoriness on this section. The country is very sparsely populated, and for some time the traffic, even in passengers, must be small, though it seems remarkable where passengers come from, for as soon as any bit of line is opened here in the south, people crowd forward.

Apparently from the outlook of this carefully prepared report it is believed that there will be considerable traffic receipts from the railway, though how it will be able to compete, except for trans-provincial goods, one finds it difficult to discover. Scores of miles of the line are laid on or near the river's bank, and the native boats glide down the river, and carry much stuff, with the loss of little time, and the expenditure of no coals and little labour.

On the other hand, where there is trans-provincial transference of goods, either on one side of the mountain that divides the two provinces, or the other, there is the flow of the river to contend against, and here, without doubt, the train will have the pull over river traffic, for in addition to poling against the stream, there must be a re-shipping of cargo, which coolies have to carry across the mountains. Anyway the promoters of the line seem quite satisfied, and by this time they should have enough data behind them to warrant them in forming conclusions as to future prospects. Many will be glad when it will be possible to travel from Hongkong to Shiuchow in one day.

The Chekiang Railway.—It is reported that a satisfactory arrangement for the handing over of the Chekiang Railway to the Government has been arrived at. The price to be paid to the shareholders of the company has not been officially stated, but is said to be \$17,000,000.

Kirin-Changchun Railway.—The traffic receipts of the Kirin-Changchun Railway for March decreased to S. Y. 67,788. The two terminal stations at Toutaokon (the junction between the S. M. and the K.-C. lines) and Kirin contributed the largest shares, giving S. Y. 26,651 and S. Y. 24,738 respectively. The Changchun Station followed with S. Y. 5,307. The receipts of the other stations were less than S. Y. 2,000.

Pukow-Singyang Line.—It was the original intention to start construction of this line from Wu-i and Singyang simultaneously, but owing to the disturbed conditions in Honan this could not be done. The Director General, Mr. Shen Yun-pei has now given instructions that work should be started on the Singyang section as soon as possible.

JAPAN

Fuel Oil For Japanese Railways.—A contract may shortly be concluded between the Imperial Railway Board and the Japan Petroleum Company, the owners of the wonderful Akita well, for the supply of oil fuel. Since it was approached by the company with the proposal, shortly after the great capacity of the well was discovered, the Board has been considering the relative advantages of oil and coal fuel. These investigations appear to have favourably impressed the authorities, as it is currently reported that the negotiations have made much headway. It is said that the company is confident of being able to supply at least sixty or seventy thousand koku a year, at the rate of 1.80 yen per koku. This price is more than one yen below the old contract price.

CHOSEN (KOREA)

Railways in Chosen.—In a report by the British Consul-General at Seoul it is stated that during 1913 the Korean railways carried a large increase of traffic. The Seoul-Gensan line is expected to be finished towards the end of this year. No light railway was constructed in 1913. Starting from the financial year 1914-15, the third railway programme is to be undertaken. This includes the reconstruction of the Seoul-Fusan line, which was originally built in a hurry owing to the exigencies of the time, and which, though since then to some extent improved, requires reduction in gradients, etc. A continuation of the Seoul-Gensan line from Gensan to Yong-heung, 34 miles in length, passing through Munchon and Kowon, is also to be laid down later, and the extension is expected to be carried on to Hamheung. Japan seems to be keen on Korea's development.

MONGOLIA

Verkne Udinsk-Kiakhta Line.—A Berlin telegram dated July 3 states that the Russian Imperial Council has granted the means for building the railway from Verkne Udinsk to Kiakhta.

THE PHILIPPINES

Extension of Existing Lines.—Railway construction in the Philippines is being continued only in line with the plans adopted about a year ago and new enterprises are not being undertaken. Within the scope of plans being realized, the chief interest centers in the approaching completion of the Manila Railway to Baguio, the mountain capital. On this branch the grading has been practically finished and the track has been laid up to the foot of the first rack grade, where the cog-road section begins. This latter section climbs a 14 per cent. grade for 10 miles through magnificent mountain scenery. On the entire branch there are to be 5 tunnels approximating a total length of 0.932 mile, of which the longest is 0.262 mile. One tunnel is practically completed, the headings having been driven

through on three and a start made on the fifth. All the material for the cog road is now on the ground and work started about April 1. It is expected that the road will be ready for traffic in 1916.

Other branches of this line also show progress. The branch line from San Francisco to Arayat is completed to Santa Ana and will be finished by the end of April. The branch from Panigue to Rosales, San Quintin, and Tayug is complete to about 8 miles from San Quintin. North of Aringay the track extension is delayed at the Naguilian River, 8 miles south of San Fernando, where a bridge of 11 spans, 150 feet each in length, is being built. It will be the largest bridge in the Philippines. South of Manila, running in a northeasterly direction from Lucena toward Laguimanoc, 12.427 miles of track have been laid. Between Laguimanoc and Siasi there are 5,000 at work grading.

At Albay large forces of men are at work in both direction on the Albay-Nueva Caceres division. From Albay and Legaspi north to Tabaco the track is laid to Bacacay. Track has been laid to Ligao, a distance of 24.85 miles; Iriga will be reached in about a year. The line reaches a rich hemp country. The company has altogether about 10,000 men at work on the various extensions now in course of construction. The company is placing in service on its main line a train de luxe of the most advanced pattern constructed in its shops near Manila.

Work on the lines of the Philippine Railway Co., the second principal system in the islands, has not been pushed very rapidly in the past few months and at present is practically at a standstill; and, in fact, the company reports that no further extensions are contemplated at the present time.

In this connection the probable extension of the use of autotrucks and automobiles as temporary arrangement in lieu of railway lines is being discussed generally, and the plan is understood to have the endorsement of the executive department of the island government. At present there is a considerable service of such vehicles centering in Tacloban, the capital of Leyte Province, where motor transportation lines are operated connecting that city with several important towns in the interior of the Province. The splendid provincial roads, built since American occupation, offer unusual facilities for extending such service. Railway projects in Iloilo and Cebu at present are receiving no further development, and the situation on the whole is considered unfavorable and unsatisfactory.

GENERAL

The Amur Railway.—The following information is from the report by H. M. Consul at Vladivostok, Mr. R. M. Hodgson, on the trade of that district in 1912:—

The Amur Railway, which is to connect, by means of a line entirely in Russian territory, the Siberian railway system with Khabarovsk and thence, by the already existing Ussuri Railway, with Vladivostok, has been progressing with unexpected rapidity. The distances on this line are as follows:—

	Versts.
Head section, from Kwenga to Urium ..	182
Western section, from Urium to Kerak ..	596
Middle section, from Kerak to River Dyia ..	633
Eastern section, from River Dyia to Khabarovsk ..	480
Branch from Botchkaryoyo to Blagovestchensk ..	100
Short branch lines run to—	
Tchasovinskaya ..	28
Reynovo ..	63
Tchernayevo ..	40

Traffic on the head section has been open since 1910 and the western section was opened in the autumn of 1913. The whole of the middle section will be handed over for working

in the autumn of 1914. Work on the eastern section is being pushed forward rapidly, and it is now likely that the whole line will be in use for local traffic by the end of 1914. The completion of the railway will, however, be impossible before the bridge over the Amur at Khabarovsk is finished, and this—an engineering work of real magnitude, for the bridge is to be 7,038 feet in length—cannot, at the earliest, be before the autumn of 1915. It is intended ultimately to divide the whole line into two parts, the eastern part to be known as the Amur Railway and to have its headquarters at Alekseyevsk on the Zeya River, and the western part, known as the Ussuri Railway, having its headquarters at Khabarovsk.

Russia is thus within measurable distance of executing, well within the projected time, the very formidable undertaking of constructing a railway 1,248 miles in length through country much of which was previously untrodden, and nearly all was uninhabited. Natural obstacles in the form of swamps and mountain ranges are met with all along the line except in the Zeya-Bureya district; the climate is extremely rigorous, and large tracts lie within the zone of perpetually frozen ground; moreover, it has been necessary to bring the whole working staff from great distances, mostly from European Russia. Under these conditions it is not surprising that the difficulties to be overcome were underestimated at the beginning, and that the expenditure has exceeded the original appropriations by some 40,000,000 roubles (about £4,222,000) or 20 per cent.

On the Ussuri Railway, important works are to be carried out, and 29,297,000 roubles (about £3,092,000) have been allotted for the purpose. The line is to be doubled throughout and between Kiparisovka and Nadyedjinskaya, near Nikolsk, the permanent way is to be changed and a tunnel 2,450 feet in length cut. The branch line to Shkotovo is to be improved. The building of wharves for coal, timber and fish on the southern side of Golden Horn Bay renders a connexion with the railway system indispensable. A branch line, 14.37 versts in length, is to be constructed for this purpose from Pervaya Ryetchka—the first station out of Vladivostok on the Ussuri line—at a cost of 3,956,630 roubles (about £417,000). It will go round the Eastern extremity of the bay and will pass through a tunnel 4,200 feet long.

A further project now being investigated is the building of a railway line from Shmakovka on the Ussuri Railway near Lake Hanka to the coast at St. Olga, or from Khabarovsk to Imperial Harbour. The Ministry of Ways of Communication is at present studying the relative advantages of the two routes. Some connexion by rail with the coast of the Maritime Province is obviously necessary.

The land connexion with Europe is by the Siberian Railway, there being two express trains every week to and from Moscow, and one to and from St. Petersburg. The journey by these trains to London takes 12½ days. A very considerable economy can now be effected by leaving the Trans-Siberian express and utilizing the daily express which has lately started running between Irkutsk and Moscow; this train does the journey in the same time and has a restaurant car and similar accommodation to the Trans-Siberian express.

TRAMWAYS

Shanghai Tramways.—The returns of the Shanghai Tramways (Foreign Settlement) for the week ended July 1, are as under:—

	1914.	1913
	\$	\$
Effective receipts (after deducting loss by depreciation of subsidiary coinage)	20,134.84	17,743.43
Passengers carried	1,175,255	930,460
Car miles run	69,783	60,826

The loss by currency depreciation for the week was \$6,582.23 equal to 26.19 per cent. of the gross cash collected on the cars as compared with \$5,020.67, equal to 23.28 per cent. for the corresponding week last year.

The following is the traffic return of the Shanghai Tramways (Foreign Settlement) for the month of June, 1914, and for six months ended June 30, 1914, with figures for the corresponding periods last year:—

	June, 1914.	June, 1913.
	\$	\$
Gross receipts	109,165.24	99,058.54
Loss by currency depreciation	26,625.95	21,919.67
Effective receipts	82,539.29	77,138.87
Percentage of loss by currency depreciation	25.99	23.36
Car miles run	290,910	256,692
Passengers carried	4,840,420	4,074,306
	six months ended June 30, 1914.	six months ended June 30, 1913.
	\$	\$
Gross receipts	636,242.94	539,797.61
Loss by depreciation of subsidiary coinage	147,281.55	116,382.65
Effective receipts	488,961.39	423,414.96
Percentage of loss by currency depreciation	24.50	22.87
Car miles run	1,602,117	1,356,311
Passengers carried	26,423,364	21,344,666

Week ended July 8.

	1914.	1913.
	\$	\$
Effective receipts (after deducting loss by depreciation of subsidiary coinage)	20,337.60	18,057.72
Passengers carried	1,193,808	958,999
Car miles run	70,443	57,653

The loss by currency depreciation for the week was \$6,674.43 equal to 26.24 per cent. of the gross cash collected on the cars as compared with \$5,113.25 equal to 23.23 per cent. for the corresponding week last year.

Week ended July 15.

	1914.	1913.
	\$	\$
Gross receipts	25,926.85	23,158.76
Loss by currency depreciation	6,400.69	5,011.66
Effective receipts	19,526.16	18,147.10
Percentage of loss by currency depreciation	26.34	22.80
Car miles run	71,244	59,357
Passengers carried	1,157,296	949,828

Week ended July 22.

	1914.	1913.
	\$	\$
Gross receipts	25,324.10	23,191.46
Loss by currency depreciation	6,195.15	5,192.73
Effective receipts	19,128.95	17,998.73
Percentage of loss by currency depreciation	26.14	23.58
Passengers carried	1,123,010	958,034
Car miles run	71,005	55,579

SHIPPING & SHIPBUILDING

Indo-China S. N. Co., Ltd.—The thirty-second annual report of the Board of Directors of this Company states that the trade of the year 1913 in China has shown generally an improvement on that of 1912, but the directors had to report a continuance of the keen opposition on the part of Japanese steamers which was experienced on the Calcutta line in the preceding year.

Including £10,083 7s. 7d. brought forward from 1912, the credit side of the revenue account amounted to £129,265 9s. 2d. After

allocating £53,750 11s. 9d. to depreciation and reducing the expenses of debenture issue by £5,000, there remained with all outgoings provided for the sum of £50,447 2s. 3d.

An interim dividend of three per cent. on the cumulative preferred shares was paid in February last, which absorbed £7,438 7s. 0d. From the balance remaining it was proposed to pay the further three per cent. dividend on the preferred shares, £7,438 7s. 0d. and to also pay a dividend of five per cent. on the deferred ordinary shares for the year 1913, which will amount to £12,397 5s. 0d. This left a sum of £23,173 3s. 3d., of which it was proposed to transfer £8,173 3s. 3d. to the underwriting account, and to carry forward £15,000.

Nippon Yusen Kaisha.—The semi-annual general meeting of the shareholders of the Nippon Yusen Kaisha was held recently at Tokyo, when the business report and accounts for the six months ending March 31 last were presented. The following is a summary of the accounts:—

	Yen.
Net profit	2,563,841
Brought forward from last term	948,990
Total	3,512,831
To reserve	128,192
Funds for the expansion of services and improvements of steamers	400,000
Reserve for repairing Buildings	500,000
Special Reserve	800,000
Bonuses to Officials	110,000
Dividend (10 per cent. per annum)	1,100,000
Carried to next term	974,639

The following is the report for the term:—

During the period under review the Company employed 85 steamers of its own, aggregating 368,000 tons, in addition to one specially commissioned steamer of 3,700 tons, and several chartered vessels. The passengers carried numbered 129,000, and the goods transported amounted to 2,100,000 tons, the distance covered by the fleet being 1,830,000 nautical miles.

Domestic Service.—As a result of depression in commercial and industrial circles in the latter part of the preceding term, the coastal trade generally was inactive, with the result that freight rates showed a considerable decline. On the Hokkaido Line shipping was remarkably dull. In Formosa business showed an increase over the preceding period because of the activity in sugar transactions. Passengers to and from the Island also increased. On the other lines there was no notable change.

Far Eastern Service.—On the Shanghai service, business was brisk on the outgoing voyages, but on the return trips the shipments did not come up to ordinary years. To North China ports business generally was dull. To Tientsin and Dairen the shipments showed no remarkable change as compared with ordinary years, but on the return trips there was a great falling-off. At Newchwang shipments of beans and bean-cake showed a slight increase. On the Chosen and Vladivostok services shipments were exceptionally brisk, and the number of passengers carried on the Shanghai and Vladivostok lines showed an increase.

European Service.—On the outgoing voyages on the European Line shipments from Japan and Shanghai were very dull. From Hongkong, the Straits Settlements and Colombo, however, there were large shipments. During the term under review the liners began to call at Malacca for the purpose of shipping India-rubber. On the return voyages there were considerable shipments to Far Eastern ports. Owing, however, to competition among the foreign shipping companies, and the consequent fall in freight rates, shipments of heavy goods from Antwerp were to a great extent affected. The freight traffic on the European service was depressed during the latter part of the term under review. As a result of the placing of new liners on the run, the first and second-class passengers showed an increase. During

the term the regular liners *Tango-maru* and *Aki-maru* were replaced by the *Katori-maru* and the *Kashima-maru*, each of an aggregate tonnage of 10,000 tons. The new steamer *Tokushima-maru* was also placed on the route as a special liner. The steamer *Wakasa-maru*, which carried a number of Japanese emigrants to Brazil, was commissioned, on the return voyage, to ship cargo from Europe and other ports.

American Service.—On the voyages to America shipments were very dull. This was due to competition between the various shipping companies. On the outgoing voyages some of the Company's liners had to carry a quantity of coal to be used on the return voyage, and yet their bunkers were nearly empty on their return. There was a considerable decline in the shipments of wheat and flour, which constitute the principal merchandise shipped on the return voyages, but the consignments of machinery, cotton and salted fish were rather brisk. The Company tried its best to secure as much cargo as possible at intermediate ports from Japan to Shanghai and Hongkong, but without result. On both the outgoing and return voyages the cargo shipped showed a considerable decline.

Australian Service.—Shipments from Japan to Australia were very small, but from Hongkong and Manila a considerable quantity of merchandise was shipped. On the return voyages there were considerable shipments of wool, lead, and fertilizer, etc. During the six months under review the *Inaba-maru* was replaced by the *Tango-maru*, withdrawn from the European service for the purpose. The strike of labourers in Australia has had a very bad effect upon shipping traffic there. The passengers carried numbered about the same as in preceding years.

Bombay Service.—On both the outgoing and return voyages the shipments were large, especially on the outgoing voyage, this being due to large shipments of cotton. Shipments of yarn consigned to Shanghai and Hongkong fell off considerably. For the benefit of cotton spinners in Japan the Company during the cotton season increased its liners from six to eight, so that instead of a fortnightly service there was a service every ten days.

Calcutta Service.—The shipments from and to Japan were large. Shipments of beans from Rangoon increased considerably, but other cereals were not so brisk. The cabin passengers showed an increase. Competition on this route continues, and freight rates during the period have ruled very low. As a result, the Company has suffered considerable losses and experienced great hardships in carrying on the competition. However, trade between Japan and India, through this service, is steadily developing.

New Steamers.—The new steamer *Yasaka-maru* (12,000 tons), built in Japan, was launched on March 14, while another new steamer, the *Suwa-maru*, of equal tonnage, was launched on March 20. These vessels are expected to be completed in October next, when they will be placed on the European service. In addition the Company has ordered from domestic and foreign yards a steamer of 12,000 tons and six steamers, each of 7,500 tons, all of which are to be completed between August this year and April next.

MINING

Kailan Mining Administration.—The total output of the Administration's mines for the week ended June 20, amounted to 61,542.90 tons and the sales during the same period to 61,070.89 tons.

Week ended June 27, output 58,285.98 tons, sales 48,676.58 tons.

Week ended July 4, output 59,817.43 tons, sales 43,343.70 tons.

Week ended July 11, output 61,199.74 tons, sales 46,567.10 tons.

FINANCIAL

Hongkong Coinage Questions.—The Colonial Treasurer (Hon. Mr. A. M. Thomson) makes the following reference to the Colony's currency problems in his report for 1913:—

The stock of subsidiary coins on the 31st December was of the face value of \$149,935.72 as follows:—

50 cents	\$ 2,973.00
20 "	33,631.60
10 "	74,162.00
5 "	5,106.85
Copper	33,972.27
	<hr/>
	\$149,935.72

while \$200,000 in 10 cent-pieces were shipped to London on the 19th December.

The value in the Treasury Books was \$326,612.09, discount written off the stock being taken at 7 per cent. Coins of the face value of \$1,040,000 were sent to England during the year for purpose of demonetization.

The limits between which the rates of discount ranged were:—

cent-pieces,	per cent. to	per cent.
50	par	3½
20	3½	8
10	6½	12½
5	1	6
Copper	par	—

On the 1st July, an Ordinance (No. 15 of 1913) prohibiting the circulation of foreign silver and nickel coins was passed to come into force on the 1st March, 1914.

The circulation in December of notes of the three Banks having authorized issues was as follows:—

Hongkong and Shanghai Bank ...	\$18,417,339
Chartered Bank of India, Australia and China ...	5,429,671
Mercantile Bank of India ...	704,742
	<hr/>
	\$24,551,752

Ordinance No. 13 of 1913, which came into force on the 1st August, prohibits the circulation of any notes other than those of the Banks whose issue is authorized by law or charter.

In consequence of this new law the circulation of Chinese and Portuguese bank notes has entirely ceased.

Banque de l'Indo-Chine.—The report for 1913 of the Banque de l'Indo-Chine states that in spite of the troublous times in the regions where the business of the bank is carried on the results of the twelve months' working were satisfactory. In fact the profit for the first half-year was the highest yet recorded, reaching the sum of Frs. 3,720,764. A dividend of Frs. 27.50 was declared on January 2 for this period, and out of a profit of Frs. 3,362,479 for the second six months a similar dividend has now been declared, making Frs. 55 for the year, as against Frs. 52.50 in 1912, and Frs. 50 in 1911. It is noted that the amount appearing on the balance-sheet under "bank premises" has increased from Frs. 4,600,832 last year to Frs. 7,421,054, and this is partly due to the buildings that have been erected in Singapore and Shanghai, although it is principally on account of the acquisition of a site for new premises in Paris, the present quarters having become altogether inadequate. The development of the bank in consequence chiefly of the extension of its business in China, and the prospective formation of new branches, has led the directors to consider the erection of premises perhaps a little large at present, but which constitute a prudent provision for the future, while it will be possible to let to Colonial associations having relations with the bank the portions which are not yet required. The report further states that it will be necessary to take into consideration the building of new premises at Pondicherry and Peking; while the construction of offices of more modest proportions is being proceeded with at Papeete and at Mengtze, in Yunnan, where the

Government has desired the formation of a new agency.

Referring to the economic situation of the countries within the bank's sphere of activity, the report goes on to say that the export of rice from Cochin-China in 1913 amounted to 1,180,000 tons, a quantity which had not been attained since 1907, and the prospects for the current year are such that a still greater export trade is expected. As a result of the favourable harvest business in Cambodia and Battambang has again become normal. In Tongking the undertakings had to suffer slightly from a decline in business, owing to the less plentiful harvest of rice and maize; but the production of ores was greater than in 1912, and, with the exception of rice a favourable harvest of land products was won in Annam. The agencies of the Banque de l'Indo-Chine in Hongkong and Canton did not suffer from the suspension of payment in Singapore and Siam. After stating that a general improvement took place in China, and referring to the first part of the reorganization loan, the report mentions that two questions are at present attracting attention—the redemption of the paper money issued during the revolution and the general monetary reform. The solution of these problems requires the assistance of European banks, supported by their respective governments, and the establishment of adequate guarantees. Since the conclusion of the last loan the results have been more encouraging than had been expected.

Netherlands Trading Society.—The General Balance Sheet and Profit and Loss Account of the Netherlands Trading Society to December 31, 1913, show that the net profits amount to Guilders 5,071,577.63 (£422,632), out of which, after providing for the statutory reserve to the extent of Guilders 561,444.92 (£46,787), a dividend of 9½ per cent. has been declared. Combined statements of liabilities and assets and of profits and losses, are drawn from the balance Sheets and profit and loss accounts of the head office and branches. In accordance with a resolution passed by the general meeting of shareholders on December 8, 1913, an issue to shareholders has been made of 5,000 new shares of Guilders 1,000 at 145 per cent., which were paid for January 6, 1914. The total paid up capital has been increased to Guilders 50,000,000.

PERSONAL

Mr. F. M. Sah has been appointed to attend the Postal Conference at Madrid in company with Mr. Piry, as representatives of China. Mr. Sah has been connected with the Board of Posts and Communications for some years and is known as a progressive and well educated official.

Mr. J. E. Foley, Traffic Manager of the Peking-Mukden Railway, and Mr. K. H. Chen, secretary of the Ministry of Posts and Communications will represent China at the Railway Conference to be held in Marseilles. Mr. Stells will act as Traffic Manager of the Peking-Mukden line during the absence of Mr. Foley.

Mr. T. W. T. Tuckey, the chief engineer of the Southern portion of the Tientsin-Pukow Railway, has received the Fourth Class Chia-ho Decoration, in recognition of his services.

Mr. John M. Darrah, the United States Postal Agent at Shanghai, has had conferred upon him, by a Presidential Mandate the Fourth Class of the Order of the Excellent Crop.

SOUTH MANCHURIA RAILWAY COMPANY.

STATEMENT OF ACCOUNTS FOR 1913.

Following is the statement of accounts for the South Manchuria Railway Company for the fiscal year 1913:—

GENERAL BALANCE SHEET

<i>Assets.</i>	
Capital unpaid	40,000,000.000
Property taken over from the Japanese Government	100,000,000.000
Stores	6,966,411.464
Coal in stock	1,301,116.020
Shares in other companies	782,845.000
Capital expenditure:—	
Railway	72,262,371.051
Steamship	4,892,636.558
Electricity	4,747,114.827
Gas	1,296,649.538
Harbour and Wharves	10,965,976.080
Mines	12,247,148.450
Workshops	6,064,830.207
Hotels	1,617,224.159
Land Impr'ts.	4,016,938.385
Land	9,771,874.602
Buildings	10,551,198.029
Total	138,433,961.886
Discount on debenture issue, less amount written off	5,042,451.960
Sundry Debtors	2,073,919.325
Payments on Suspense a/c	2,097,863.105
Loans	6,119,089.500
Payments on a/c of uncompleted works (Workshops)	773,280.168
Payments on a/c of uncompleted works (Construction)	358,808.581
Deposits	8,093,403.451
Postal and Revenue Stamps	10,117.445
Cash in hand and at Bank	452,179.609
	312,505,447.514

Liabilities.

Capital Authorized 200,000,000.000	
Capital subscribed	160,000,000.000
Reserve prescribed by Law	1,132,888.660
Special Reserve	8,900,000.000
Debentures	117,156,000.000
Land Administration a/c	47,939.213
Sundry creditors	3,130,718.763
Receipts on Suspense a/c	10,148,670.535
Employees' Savings Deposits	2,279,627.900
Guarantee Money	136,533.730
Agencies	254,577.410
Balance brought forward from Last Term	2,151,212.299
Balance for the Term	7,167,279.004
	9,318,491.303
	312,505,447.514

PROFIT AND LOSS ACCOUNT FOR THE FISCAL YEAR ENDED MARCH 31, 1914.

Dr.

To Railway Expenditure	7,913,948.370
" Steamer	799,286.640
" Mining	12,571,681.200
" Harbour	1,728,910.500
" Land	1,951,538.280
" Hotel	280,636.530
" Electricity	642,809.830
" Gas	106,057.360

Sundry Losses	338,354.793
General Management Expenditure	2,671,917.640
Interest on Debentures	5,564,910.000
Writing off Discount on Debentures Issue	680,093.280
Balance for the Term	7,167,279.004

42,417,123.427

To Reserve prescribed by Law	358,363.960
" Dividend on Government shares	2,500,000.000
" Dividend to Shareholders other than the Government, at the rate of 6 per cent. per annum	1,058,427.200
" Supplementary Dividend to Shareholders other than the Government, at the rate of 1 per cent. per annum	176,404.520
" Special Reserve	2,000,000.000
" Bonus to Officers	300,000.000
" Honorariums for Retired Officers	300,000.000
" Balance carried forward to the next term	2,625,295.623
	9,318,491.303

Cr.

By Railway Receipts	22,275,132.040
" Steamer	672,616.660
" Coal	14,372,232.430
" Harbour	1,911,716.570
" Land	900,852.660
" Hotel	259,961.510
" Electricity	977,880.330
" Gas	183,500.420
" Sundry	117,509.087
" Interest Account	745,721.720

42,417,123.427

By Balance brought forward from the preceding Term	2,151,212.299
" Balance for the Term	7,167,279.004
	9,318,491.303

Dr. Nomura, President, and Mr. D. Ito, Vice-President of the South Manchuria Railway Company, have been compulsorily retired. Lieut.-General Baron Y. Nakamura has been appointed President. He was previously the President of the Steel Works at Edamitsu. Mr. Kunisawa has been appointed Vice-President.

PUBLICATIONS, CATALOGS, ETC.

The Deutsche Maschinenfabrik, A. G., of Duisburg is noted for its splendidly turned out trade books and brochures. Recently we made reference to "The Industrial Harbour" relating to cranes and transporting appliances for the quick handling of goods in modern harbors, and we are now in receipt of two more books, one devoted to giant cranes and the other to cold rolling machinery. The Deutsche Maschinenfabrik A. G. has been engaged in constructing hoisting appliances since the year 1830, and the book relating to giant cranes gives interesting particulars in regard to the various cranes turned out from the works of late years. These include the largest revolving and floating crane in the world of 250 tons maximum working capacity, constructed for the Imperial Naval Yard in Wilhelmshaven. The book on cranes as well as that on cold rolling machinery, is excellently illustrated.

Messrs. Mather & Platt, Ltd., send us their recently issued book on patent mechanical filters for industrial purposes. This catalog is splendidly illustrated and shows a number of the installations supplied by Messrs. Mather & Platt, Ltd., to concerns in various parts of the world.

The Selson Engineering Co. Ltd., of Queen Victoria Street, London, forward us an attractive abridged pamphlet of Machine Tools. The pamphlet is well illustrated and full information is supplied in regard to this firm's various specialities, including shaping, milling, rounding, gear cutting, broaching, planing and other machines, lathes of all kinds, etc. etc.

The Administrations of the Chosen Railways and the Shantung Railway Company have recently issued leaflets giving very complete information about their respective systems, and showing the connections that can be made with other lines.

THE SUGAR INDUSTRY IN THE PHILIPPINES

The following extracts are from a letter by Mr. G. E. Nesom, formerly Commissioner of Agriculture in the Philippines, published in the *Louisiana Planter and Sugar Manufacturer* of May 2:—

It is evident that the sugar producers of Louisiana and in the beet country as well as the refiners are getting a much clearer vision of the true position of the Philippines as a factor in the American sugar supply than was possible when the question of the admission of sugar from there into the mainland of the United States was a political issue. Men on both sides of the issue have seen their conclusions reversed, especially those Louisiana planters who claimed to believe that the Philippines would flood the United States with free sugar, produced by cheap Oriental labor. The extent to which erroneous views were created may be illustrated by the case of a prominent Government official who visited the Islands under the impression that the whole country was "a waving field of cane from shore line to mountain top." As the steamer approached the San Bernadina Straits he called his friends to the deck to view the cane fields on the mountain sides, only to find, on closer view, that the rugged coast of that section is largely unoccupied and the deforested hillsides covered with the tall tropical *talahib* grass. It took him a long time to realize, that nearly half of the sugar produced in the Islands comes from a little group on the west coast of the Island of Negros embracing less territory than some of the parishes of Louisiana.

Even as late as April 18, 1914, an editorial in the *Louisiana Planter* ends with the observation that: "The Philippines, so far as soil, climate and population numerically considered could readily produce nine million tons." As an offset to this kind of view, one of the men sent to Washington to argue for free sugar for the Philippines compiled figures to show that if all of the land suitable for cane growing in Louisiana and Texas were reclaimed by drainage and irrigation it would be sufficient to produce enough sugar to enable growers there to monopolize the sugar market of the United States.

We are just about as likely to see this enormous increase in the cane crop of the South as we are to have a corresponding encroachment on the American sugar market by Philippine sugar producers. Many have felt that they had the correct view who had never looked at the facts in the case, and it is with some of these facts gained from seven years' residence and close contact with the sugar industry of the Philippine Islands, as well as a fair knowledge of the sugar situation in the Hawaiian Islands and Louisiana, that I propose to deal.

From the day the United States acquired the Philippine Islands a great many domestic sugar producers and their friends have felt that a strong restraining influence was necessary to prevent American capitalists from converting the Philippine Islands into that waving field of cane about which so much was said in sugar circles five or six years ago. Corporation laws, land ownership and public sentiment were so shaped as to keep them out. The man on the ground, and looking at the facts, was quite sure that strong inducements would have to be offered to get capital put into any agricultural proposition in the Islands. It was even difficult to get enough capital interested to carry on the ordinary commercial operations of the country, and to-day a large part of the inter-island shipping and import and export business is carried on by means of foreign capital. American capital has shown a timidity of investment there, which to my mind was perfectly natural. Safety is the watch word of the investor, and he has never felt that a permanent investment would be entirely safe in the Philippines with their uncertain political future. This seems to be shown clearly in the withdrawal of capital and decrease in both the imports and exports of the islands since the beginning of the Democratic administration there, and particularly the decrease in the exports of sugar to the United States. While it is not intended to present any political arguments here, the opponents of free sugar have the Democratic policy to thank for effectually eliminating the Philippines as a factor in the American sugar trade for many years yet to come, if that will afford them any consolation. It is a fortunate thing for the Island that they are at the door of China, where the consumption of sugar is rapidly increasing among that vast population.

Although we hear much more about the few mills in the Philippines built or controlled by Americans than those of the Filipinos, who produce most of the sugar consumed and exported, the fact remains that Americans have not, and will not, in the near future, become the dominant factor in the production and handling of sugar in the Islands. The Americans who have gone into the sugar business in the Philippines have in many cases well sustained the reputation for which we are so well known among foreigners—that we are Americans, very proud of that fact, and unwilling to learn anything of foreigners. True it has cost them rather dearly, but they are not men to admit a mistake. For example, the first American sugar venture of any importance in the Philippines was seized upon by the anti-Philippine, anti-free sugar, anti-trust contingent of sugar people in this country and made the subject of an expensive congressional investigation which served but little purpose except to further estrange the Philippine and continental sugar men. The facts were that the Philippine Government had succeeded in unloading a big friar estate on the nethermost end of an almost uninhabited island where native laborers from other islands could scarcely be induced to go on account of the racial gregarious characteristic of the Filipinos, and a superstitious dread of a race of man-eaters supposed to lurk in the forests of the island. During the investigation the men who bought this hacienda were pictured by the

opposition as financial magnates of New York and Cuba who were so old in the trust arena that they had horns as long as a Texas steer. But they showed themselves true to the American tradition, defended themselves as best they could, and their friends never dropped a hint that the discouragements they had met had been so numerous that they would have closed out their entire Philippine project much below par.

These men had plenty of money, but no experience among the monsoons and Malays. They had to learn all about the physical and climatic conditions on their property, and they took a long and expensive course in Filipino character and tropical sanitation before they attained much success. They had to build a railroad fifteen miles from the mill site down the coast to a harbor that was safe from typhoons, bring all their labor from a distance at almost double the normal wage, provide all living facilities, medical attention, sanitation and transportation back to their homes when they became sick or dissatisfied, ship all their supplies from Manila or elsewhere. The seed cane was obtained from distant islands, and the management learned, by an almost complete crop failure the first year that mature body cane is not viable in the Philippines, especially without irrigation during the dry season when the planting is done. They built one of the finest mills that money could buy, and when it was ready to run they did not have enough cane to supply seed for their fields the next year. Had this mill been located in the cane growing district of Negros where the Filipinos are laboriously butchering their cane every year on little three-roller mills and evaporating the juice in cast iron cauldrons, and operated as a modern central, buying its entire supply of cane it would have paid for itself in profits before it ever had half a season's run.

Some five years ago, two Americans who had saved a little from their salaries in the Philippines bought comparatively small tracts of sugar land adjoining each other near Manila. Both managed to keep up the payments on the land and one of them succeeded in building a small, modern mill on his tract. Both needed money for operations and development, but neither could get it, and the one who had no mill recently proposed to sell out to the other, who promptly advised him that he would not have the land as a gracious gift if it necessitated keeping up the payments. The land is all right, the climate is almost ideal, the transportation by rail, water and turnpike could scarcely be improved, but the small investor knows too well that the majority of those who have put their savings into farm land investments have lost them, and the man of Wall Street is not looking for investments in the sugar lands of the Philippines.

I would not for a moment argue that there is not a splendid opportunity for the investment of American capital in the Philippine sugar industry, but am fully convinced that the opportunity is in the manufacturing end of it rather than in the agricultural. To my mind the San Carlos central mill represents the best type of investment there for the American, and is worthy of the most careful study by those who would engage in the sugar industry of the Islands. My reasons for this conclusion are two-fold. In the first place, I am of the opinion that it is best everywhere to separate the growing of cane and the manufacture of sugar from a business standpoint just as far as possible. If all the facts were known, it could readily be seen that many of the plantation mills in Louisiana and the Hawaiian Islands have been sacrificing a large part of their earnings to cover up the excessive cost of growing cane as a result of poor farming. There are also cases where good farms that would have made money selling cane have been called upon to meet the deficits resulting from poor manufacturing. In either case a complete separation would have readily located the defect, which a common management, through personal pride might conceal forever. The complete separation of the two is much more imperatively demanded when the land producing the cane is cultivated by an oriental race who differ widely from the American in their views of land tenure, industry, religion, social relations, politics and business.

The San Carlos idea recognizes the grower of cane as in a separate business, contracts to take his product at the mill carrier where the manufacturer assumes complete charge of it and performs all services necessary to handing the grower a check for 60 per cent. of the net returns from the sale of the sugar secured from his cane. The idea is of Hawaiian origin among men who have worked Oriental labor in the cane fields ever since the missionaries went there. It was backed by the Hawaiian sugar factors, who took years to work out the details with the cane growers of the San Carlos Valley on the east coast of the Island of Negros. The final result was that the hacenderos of that valley leased for a long period a suitable mill site, water front for docks, railway right of way all parts of the valley and other minor considerations, and contracted to grow cane for the central mill for a period of thirty years.

The capitalists, on their part, agreed to build a modern central mill, capable of handling the cane of the valley, construct a plantation railway to suitable points for receiving the cane from all the plantations, supply the cars and operate the road, and provide suitable docks for loading the sugar on vessels for export, transport, manufacture and sell all the sugar produced from the cane supplied. As far as possible the line of demarcation between the two interested parties was clearly defined, the cane grower having complete control until the cane is delivered on the cars, and the mill operators assuming all responsibility thereafter. The agreed division of the net proceeds on the basis of 60 per cent. to the grower and 40 per cent. to the mill owners represents a compromise on the part of both parties to the contract. It may be taken as an indication of the inducement demanded by

capital for investment in sugar mills out there and the price which the Filipino cane grower can afford to pay for good milling. It gives no distinct advantage to either party during any range of fluctuations in prices, and promises to be permanently satisfactory to both the grower and manufacturer.

The future of the sugar industry of the Philippines lies along the paths marked out by Java in better milling and the manufacture of white sugar for consumption in China, Japan, and other parts of the Orient.

THE GRADING OF MANILA HEMP

The plans of the government of the Philippines for the official grading of Manila hemp and other fiber products of the islands, have been established as law by the Philippine Legislature. The plan of classification and grading was adopted after most vigorous opposition on the part of Manila and other exporters of, and dealers in, hemp on the ground that the proposed grading and classification would do away with recognized brands of exporting firms, that it would be expensive, and that the colors, texture, strength, and other qualities of hemp were so various that it was impracticable to attempt to set up arbitrary standards for such purposes.

By the provisions of the new law, which will go into effect in January, 1915, the government proposes to establish fixed standards for the grading of Manila hemp or abaca (*Musa textilis*), the Manila maguey (*Agave cantala*), and sisal (*Agave sisalana*). These standards are to be determined by the Director of Agriculture, with the assistance of such experts as he may call to his aid, and shall be announced six months before the new act goes into effect. The new standard samples will be prepared in suitable form by the Bureau of Agriculture, and interested parties can secure such samples of the various fibers for use in grading upon application and payment of the cost thereof.

GRADING ESTABLISHMENTS FEES BALING REQUIREMENTS

The grading is to be done only in establishments licensed annually by the Director of Agriculture for the purpose. There are to be five classes of these grading establishments, graded according to the quantity of loose fiber they bale and grade, i. e., first-class establishments, handling 5,000 metric tons and more of such fiber; second-class establishments, handling between 2,500 and 5,000 metric tons of fiber; third-class establishments, handling between 2,000 and 2,500 tons; fourth-class establishments, handling between 1,000 and 2,000 tons; fifth-class establishments, handling between 500 and 1,000 tons; and sixth-class establishments, handling less than 500 tons annually. Fees are to be paid by these grading establishments of \$500, \$250, \$125, \$50, \$25, and \$12.50 per annum.

The fiber is to be graded according to the standards established by the Government, represented by samples furnished for the purpose, but each grading establishment which is also an exporter of the fiber, may use private marks or brands in connection with the name of the official standard provided that such marks shall have been registered at and authorized by the Bureau of Agriculture. The fibers graded by these establishments shall be pressed into bales approximately of the following dimensions and weights: Length, one meter (3.28083 feet); width, 50 centimeters (1.6404 feet); height, 55 centimeters (1.804 feet); weight, 125 kilos, or 275 pounds net. The size of bale and other conditions applying to any particular grade of hemp in which excessive pressure would be injurious will be determined later by the bureau. The limit of the size of diameter and weight of each hank of fiber in the respective bales is to be announced at least six months before the law goes into effect. The hanks in each bale shall be of uniform color, size, and extraction, and each shall be tied by a portion of the same fiber. Every bale shall be free from strings, waste, tow, damaged fiber, fiber other than that which constitutes the bale or other extraneous matter, and the fiber shall be dry. No grading establishment can charge more than \$4 per metric ton for grading and baling any fiber covered by the act.

INSPECTION OFFICES—CONFORMANCE TO TRADE STANDARDS

For the execution of the act the Director of Agriculture is authorized to open a special Fiber Inspection Office, with necessary suboffices in hemp districts, and to appoint inspectors to be stationed at each export port and such other grading stations in the territory as may be necessary. The inspectors shall supervise the grading and baling of fiber and shall issue inspection certificates. A certain number of fiber inspectors are to be detailed to educate producers as to the manner in which they shall prepare their fiber to meet the requirements of the act, all fiber of which an official standard is established shall be graded and baled subject to the inspection of these officers. Every shipment of fiber shall be accompanied by a certificate of inspection, the certificate being transferred with the ownership of the lot covered by it.

While the law is regarded as more or less experimental it is generally recognized in the trade that some such system has come to be necessary for the protection of the hemp-producing interests and the good name of the Philippine hemp and other fibers, and it is believed that the system now established with such modifications from time to time as experience may indicate as advisable will effect the desired purpose. It is understood that the standards arranged by the Bureau of Agriculture will conform as far as practicable to well-established qualities and brands now known to the trade.

In order to make a study of the character of grades needed by the textile mills abroad which use Manila hemp, the Philippine Department of Agriculture has sent Mr. Murat M. Saleeby, its fiber expert, on a tour of investigation.

RAILWAY CONFERENCE AT TOKYO.

The International Railway Conference recently held in Tokyo is reported to have been quite successful and it is expected that there will be great improvement in the passenger service between China and Japan. Arrangements were made whereby through railway tickets will be sold from Japan to points in China such as Kalgan, Hankow, Shanghai, etc. An arrangement for checking baggage through to destination was also made and it is believed that the conference will result in increased passenger traffic over the Chosen railway and connecting lines. The next International Railway conference will be held in Peking in April.

The representatives of China at the Conference were Mr. J. E. Foley of the Peking-Mukden Railway and Mr. K. H. Cheng, Secretary of the Board of Communications, Peking.

The figures showing the import and export trade of the Philippine Islands for the six months ending June 30, show an increase in the value of imports and exports as compared with the same period for the year 1913.

The value of the imports has increased P1,759,260 while the exports have increased P6,880,066, or a total increase in the trade of the islands for the first six months of the year of P8,639,326.

The total value of the imports amounted to P55,761,584 for the past six months as against P54,002,324 for the same six months last year, while the exports amounted to P53,967,998 for this year, as against P47,087,932, for last year, making the total trade for the six months P109,729,582, as against P101,090,256 in 1913.

The value of the goods imported into the islands exceeded the value of the exported products of the islands by only P1,759,260, which is nearer a balance in trade than has ever before been attained since 1899, when the balance of trade was in favor of the islands by nearly P3,000,000. The large exports of sugar and hemp during the month of June, which exceeded the exportation of these two items for that month last year by nearly P5,000,000, are largely responsible for the increase shown in exports, and were larger than the exports of these products for any other single month of the six, either this year or last.

“YALE- IN - CHINA”

WESTERN UNIVERSITY MOVEMENTS IN THE REPUBLIC

The following brief history of a most interesting movement is supplied by Dr. Edward H. Hume, Physician in Charge of the Changsha Yale Hospital.

Inspired in part by the activity in Northern India of an Oxford-Cambridge Mission, graduates of Yale University conceived the idea in 1900, of undertaking an outreaching work in China. After two years of conference with older men and a good deal of groundwork, the first appointee of the newly formed Yale Society sailed for China in 1902. He spent his winter in the north of China studying Chihli, Shan-si and Shantung with a view to determining the location of the proposed work. The summer of 1903 saw two significant steps taken. The first was the acceptance of the invitation to locate the Yale work at Changsha. Hunan had been practically closed to foreigners prior to the Boxer Movement; but after 1900 it was rapidly occupied by missionaries and business men. In June of 1903 at a conference of all the missions in the province a hearty invitation was extended to the Yale representative, Lawrence Thurston, to locate the Yale movement at Changsha and it was possible, very soon after, to send an equally cordial acceptance.

The second important step was the decision to make of the Yale work a distinctively educational movement. It was eminently fitting that a Yale movement should be educational; and it was equally fitting that the new movement, thus called to Hunan, should introduce something that would supplement the work of the missionary societies by establishing, as proposed, a college which would be a central institution of higher learning for the province; rather than by adding one more to the number of missions doing evangelistic work. There has been no step since 1903 of such deep significance as these two; the choice of Changsha and the definite confinement to educational lines of work.

Thurston died in 1904—of tuberculosis; but not before his successor had come to China and others had committed themselves to the movement.

Surveying rapidly the ten years that have passed since then, one may observe:—

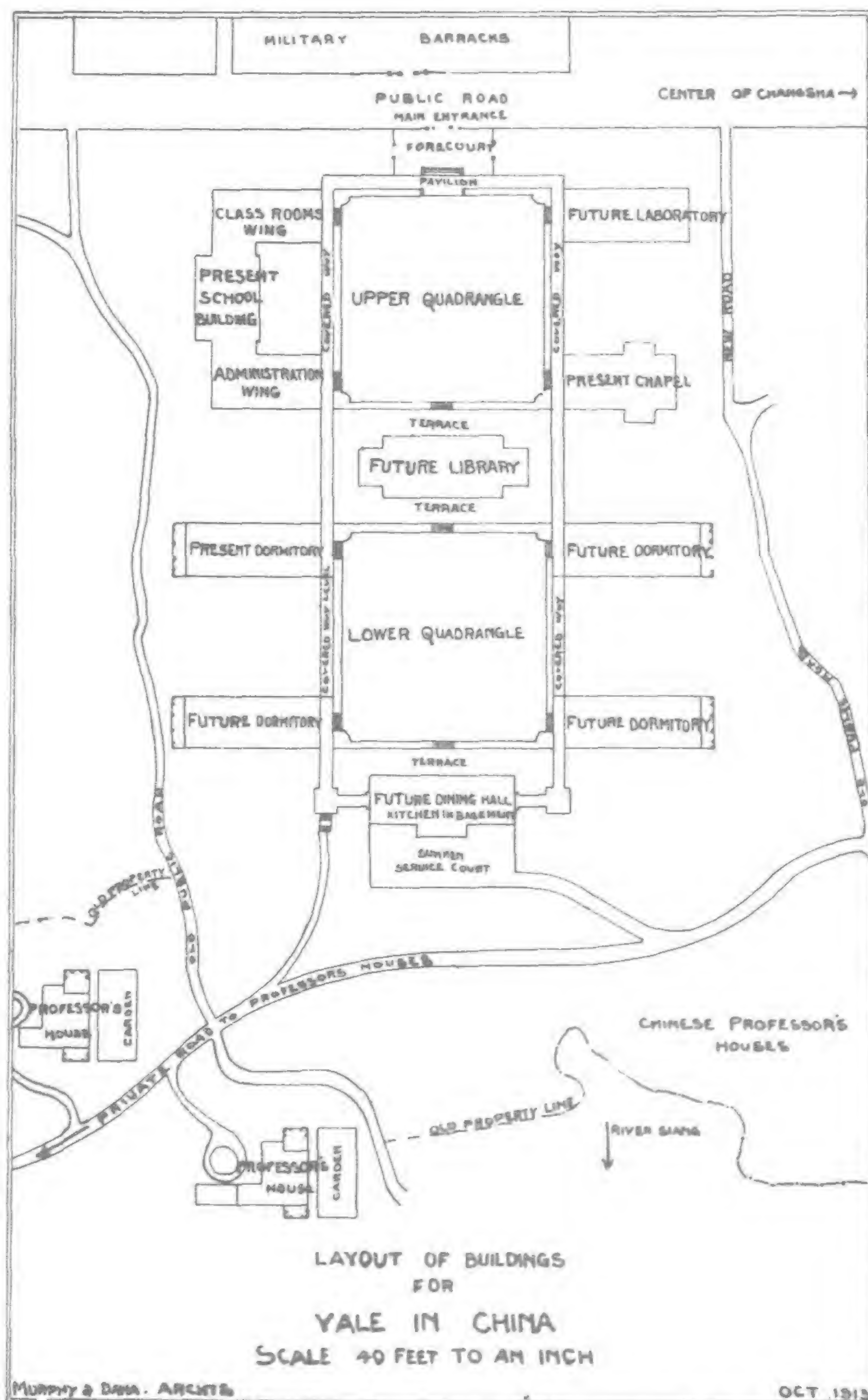
1. *The Staff.* Fifteen men and three women have been sent out from America up to the present as salaried workers (exclusive of wives). Of this number four have been doctors and two graduate nurses. Four new teachers for the college and one new doctor are expected during 1914; and in addition, two supervising architects have been employed during the past year.

2. *Scope of the Work.* Starting with a single group of boys in November 1906, The Preparatory Department for the College, doing work of grade equal to that of a Western high school, now numbers well over 100 students. The number would be twice as large were the accommodations adequate. Three classes have completed the work of the Preparatory Department; and of the graduates seven will form a Freshman College Class to begin work in 1914.

On the medical side, a dispensary with eight beds was started in 1907, and has now expanded into a women's hospital of 38 beds, and an associated men's hospital (the hospital of the Red Cross Society) with over 80 beds. 15,500 out-patients were seen in the women's hospital alone in the year 1913-14; and counting in calls to homes, in-patients, and others, a total of over 38,000 treatments was given by the two hospitals during the same year. The laboratory is equipped for modern bacteriological and chemical work and is providing ample material for study for a number of workers. In the women's hospital eleven pupil nurses are in training, and over twenty at the men's. No single endeavor during the past year has been more fruitful in satisfactory results than the establishment of these training schools.

The way to actual medical teaching seemed strangely difficult until a year ago, when, after many attempts to formulate other plans for a medical school, leading citizens of Changsha came forward with a scheme for co-operative medical education. The then Governor, T'an Yen-k'ai, heartily supported the plan, and in the summer of 1913 a tentative agreement for medical education to be conducted co-operatively by Yale and the Hunanese was signed. The nursing schools commenced under this agreement have gone forward without interruption, as mentioned above, in conjunction with the hospital work; but the medical preparatory course, started in December of 1913, had to be discontinued temporarily because of the Government's desire (in Peking) to modify the agreement. Negotiations are now in progress and we look forward to a vigorous re-commencement of medical educational work in the Fall of 1914.

3. *The Uniqueness of the Movement.* From the first, the American staff has sought to emphasize its desire to welcome Chinese colleagues in full fellowship, whenever their Western training and other equipment should prove their readiness. The first Chinese on the staff as a full member has been Dr. F. C.





YALE HOSPITAL, CHANGSHA.—Crowd waiting for treatment at dispensary hours.



YALE HOSPITAL, CHANGSHA.—Even in old buildings modern medical treatment can be given.

Yen, son of one and nephew of another distinguished clergyman of the Episcopal Church in Shanghai. Dr. Yen's presence has been a constant means of deepening those ties of fellowship with the Chinese which are the natural basis for the forward work of the coming years. Reference to the sketch about the proposed buildings will show a further attempt to develop Chinese relations. The Yale Committee believes that every possible step should be taken to conserve the architectural heritage of old China, blending it with the structural requirements that the modern world makes to-day.

In Changsha the Yale movement has found a city full of pride over its ancient history and full of energy for the forward movement of to-day. The Principals of the city schools are not infrequently in conference with the teachers of the Yale Faculty, and not infrequently secure their services for their own institutions. And the doctors of the Hospital staff all serve as advisers to the Bureau of Hygiene, which, under the inspiration of a most energetic Police Commissioner, is undertaking systematic improvement of those conditions that have favored disease. Their work is further aided by the activities of the Changsha Women's Social Service League—which provides sterilized milk for needy children, lectures and literature on home hygiene, a visiting nurse, help to indigent women needing hospital treatment, etc.

American University men may well feel that the service which their training fits them to give finds abundant outlet and opportunity in this energetic

capital city in the heart of China.

The Committee in charge of the Yale in China work consists of

Clarence H. Kelsey, Yale, ..	..	1878, President;
Dr. Amos P. Wilder, ..	..	1884, Vice-President;
<i>Executive Committee</i>		
F. Wells Williams, ..	..	1879, Chairman;
L. P. Breckenridge, ..	..	1881,
E. B. Reed, ..	..	1894,
W. H. Sallmon, ..	..	1894,
A. P. Stokes, Jr. Yale, ..	..	1896;
S. Thorne, Jr. ..	..	1896;
A. C. Williams, ..	..	1898;
W. Walker, ..	..	1901;

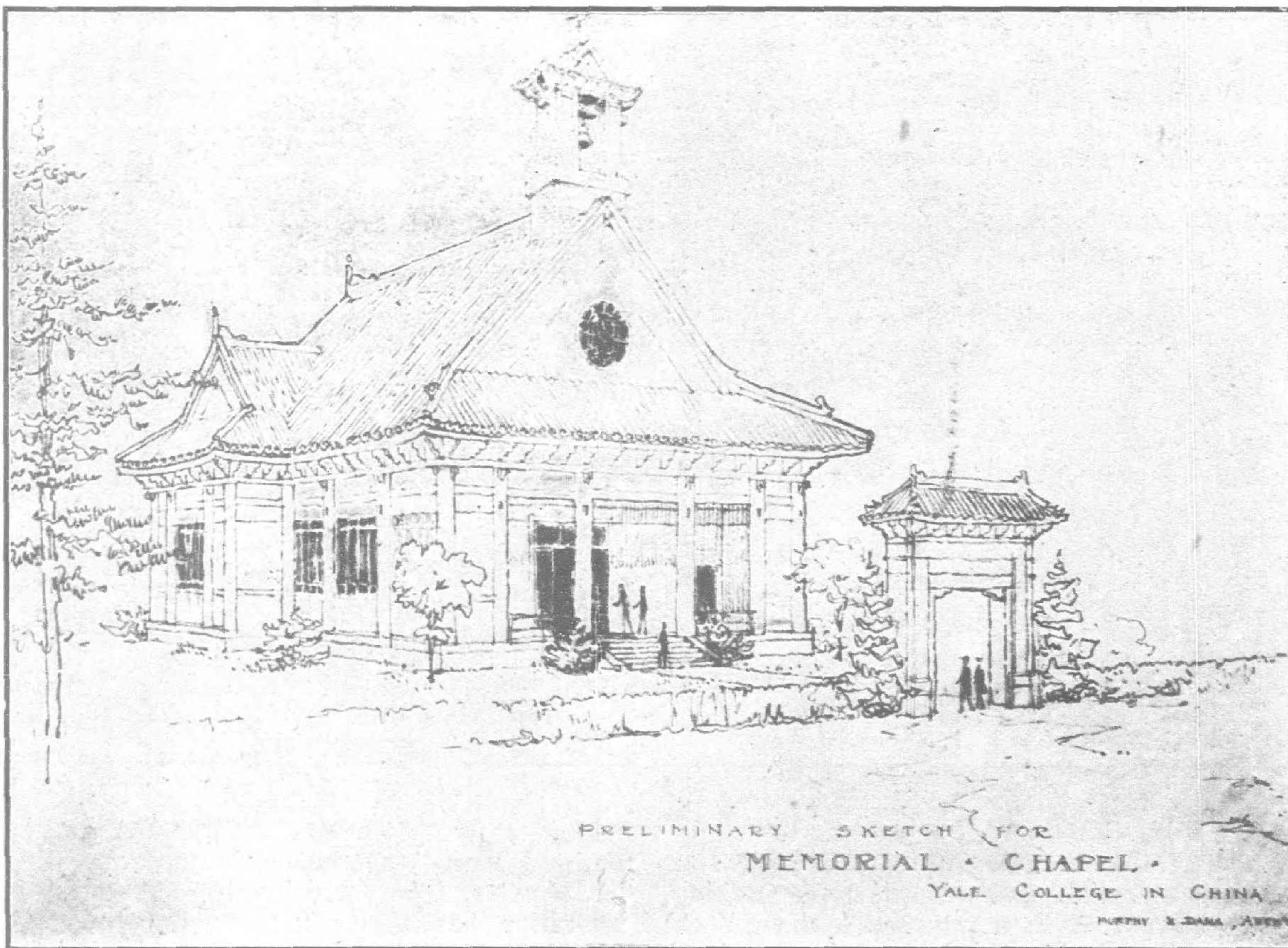
China

Committee

- Dr. F. C. Yen, 1909;
- W. J. Hale, 1904;
- E. D. Harvey, 1907;
- O. C. Morse, 1910;
- P. S. Achilles, 1913;

Hospital

- Dr. Edward H. Hume,
- Dr. Alfred C. Reed,
- Dr. T. M. Li,
- Dr. T. L. Li,
- Miss Nina D. Gage,
- Miss Beatrice Farnsworth,



History of the Buildings

From another source we learn that until a few years ago, owing to financial disabilities, the "Yale-in-China" movement was compelled to get along as best it could in cramped temporary quarters within the city wall. The work it had accomplished, however, had been so strikingly successful, and had made for Yale so good a reputation among the Chinese, that the authorities in America began to realise that more support was needed and deserved. A movement was consequently started to raise funds to buy a suitable area of ground upon which could be erected a modern and up-to-date plant for the work. This was soon accomplished and enough money has now been raised, in addition, for the construction of several of the buildings, through a large number of individual subscriptions from Yale graduates; while the funds for erecting and equipping the hospital have been generously contributed by a single Yale graduate. The donor of the hospital employed Mr. James Gamble Rogers, Yale, '89, of New York, as his architect; while, for the College group and for the Professors' houses, etc., the Yale Foreign Missionary Society engaged as its architects Messrs. Murphy and Dana, of New York. Mr. Murphy is a graduate of Yale in the class of 1899; while both Mr. Murphy and Mr. Dana hold honorary degrees from the Yale Art School.

After something over a year's study, the plans were advanced to the stage where actual working drawings could be prepared; and in May, 1913, at the suggestion of Messrs. Murphy and Dana, Mr. Stanley Wilson was sent to Changsha from New York to assemble the necessary data in regard to costs, materials, and other essentials, and to perfect the working organisation at Changsha. Mr. Wilson returned to New York in August, 1913, and upon the valuable data he was able to collect

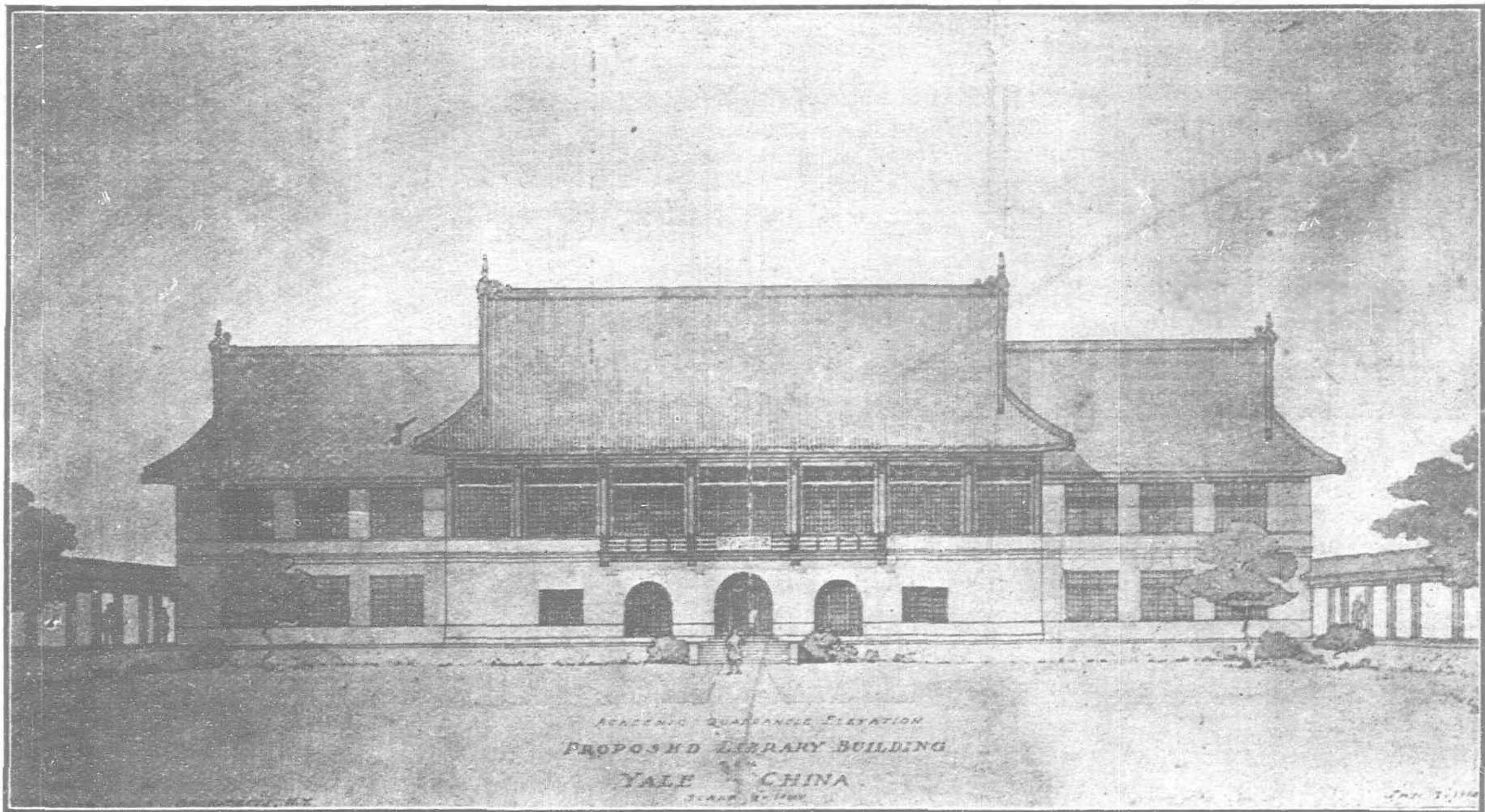
the architects completed the working drawings for the various buildings. In December Mr. Wilson returned to Changsha and took up his work as Supervising Architect in charge of construction.

Mr. Henry Killam Murphy, of the firm of Messrs. Murphy and Dana, has just completed a visit of inspection to Changsha; and as a result of his study of conditions on the site found it advantageous to make some important changes in the arrangement

of the College group and Professors' residences. On May 29, 1914, the corner stone of the first Dormitory building was laid by Mr. Roger S. Greene, ex-Consul-General at Hankow, at present acting as a member of the China Medical Commission of the Rockefeller Foundation.

A great deal of study has been devoted to the choice of a style for the "Yale-in-China" group; and the decision to use a modern adaptation of the traditional Chinese style of architecture was made only after most careful consideration of the objections raised to it in certain quarters. It was felt that in addition to the educational, medical, and religious objectives of the Yale movement there was also an opportunity for good in the buildings themselves, by showing the Chinese the possibilities of preserving their architectural heritage in a group of buildings embodying the most modern American ideas of plan and construction. As will be seen from the accompanying illustrations, Messrs. Murphy and Dana have followed the more restrained architecture of the north of China, as exemplified in and around

Peking, rather than the exaggerated features found in the south. Most of the elaborate ornamentation found in the temples from which the architects have taken their inspiration has been omitted; but by relying upon careful study of proportion, mass and color, it is hoped to preserve





Bottom Row: Dr. Hume, Miss Farnsworth, Mrs. Chang, Miss Gage and Dr. Yen. Top Row: Dr. Li, Miss Wu, Dr. Frost, Miss Wang, Dr. Reed, Miss Yen, Dr. Li.

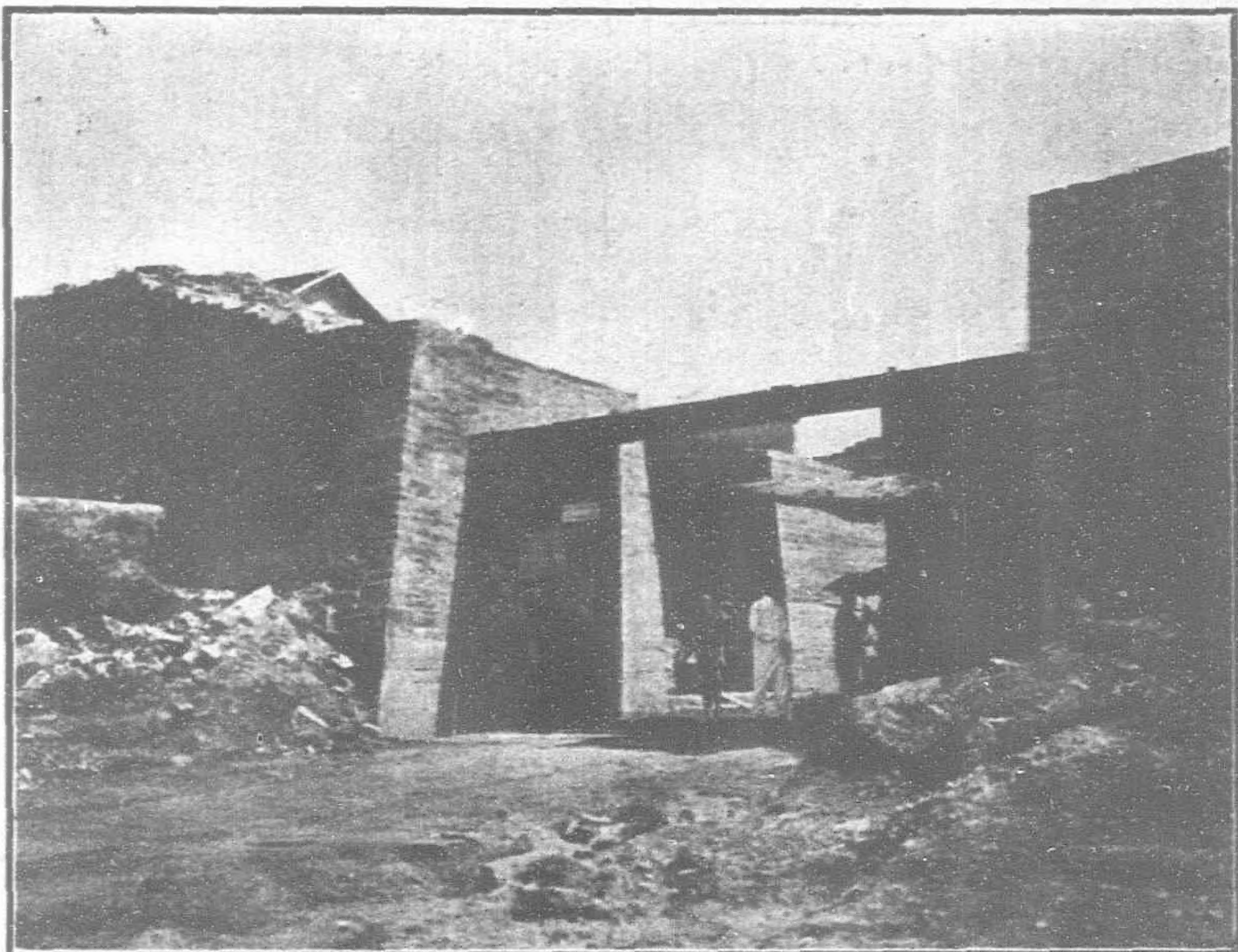
the spirit of the Chinese traditions, and yet keep the cost of erection down to a point which will make it possible for the Chinese themselves to use the Yale buildings as models for their own future work.

The site upon which the buildings are being erected consists of about twenty acres situated outside the North Gate of Changsha, on rather high land, and with a fine view of the river and of the beautiful country in the vicinity. As is shown by the accompanying drawing of the lay-out of the buildings, the orientation adopted differs from that followed in many similar institutions; the buildings running North and South instead of East and West. This plan was adopted after careful study of the meteorological conditions, etc., in view of the necessity of obtaining the fullest value from the sun; as in winter time, when the College has its longest session, the cold and damp are excessive. In the worst months of the summer the College will be in vacation, so the matter of obtaining the maximum of ventilation is considered less important than that of securing the minimum of dampness and cold. The main entrance to the College group will be from the River front. There will be two quadrangles separated by the great Library Building; the first comprising the four Dormitories, the second School Building, the Laboratory and the Chapel; while at the rear of the whole group, furthest from the entrance, will be the Dining Hall. All the buildings will be connected by a covered way running around the four sides of the two quadrangles. Such a cloister is very desirable in a climate where protection is needed from long spells of rain and of great heat: and forms, as well, a most pleasing architectural feature. The Hospital, which is not shown on the plan, adjoins it on the South; whilst the Professors' residences, twelve in number,

will be to the North and West. All the buildings will be of brick, with varicoloured Chinese tile roofs. The Hospital will be fire-proof throughout. As far as possible, local material and labour will be used; but the most approved and up-to-date methods of construction will be followed. To prevent the incursion of white ants, a pest which wreaks havoc with all timber, special precautions in the shape of concrete protections are being used. The Dormitory, which is now being built, is a little over one hundred feet long by about forty feet wide. It will be about two and one-half storeys high and will accommodate about 100 boys. The Library will have the open shelf system, arranged in alcoves. The Chapel will seat 450. All the buildings will be fitted with complete sanitary conveniences, and with electric light; and a modern scientific sewage disposal plant will be installed.

Most of the buildings now in course of construction will be ready to open by September 1915; and it is hoped that money will be available to complete the whole group within the next five or six years.

Owing to the necessarily restricted finances of most institutions of this kind, buildings erected with mission funds have often been so poorly planned and constructed, that they have had to bear maintenance charges out of all proportion to their original cost. The Yale Mission at Changsha are trying to avoid this, and to expend their funds upon a purely business basis; and have instructed their architects to



Breaking down Changsha's old wall. One of the six new gates cut through the old wall since the Revolution.

produce the most substantial buildings possible. In this respect, as in others, it is hoped that "Yale-in-China" may serve as a model not only for the Chinese but for all who may be interested in the erection of educational institutions in the East.

PROPOSED EXTENSION OF DAIREN WATERWORKS

As previously reported, says the *Manchuria Daily News*, the proposed extension of the Dairen City Waterworks, work on which was commenced recently on a five years' programme, entailing the total outlay of Y1,290,000 inclusive of Y300,000 for the present fiscal year, is designed upon the following plan:—

Bottom of reservoir.....	204 ft. above sea-level.
Length of dam.....	720 ft.
Width	{ 12 ft. on top.
	{ 67 ft. at base.
Top of dam	279 ft. above sea-level.
Highest water mark	274 ft. „ „
Storage capacity	4,288,499 tons.

Area of surface of reservoir about 180,000 *tsubo*.

Dam to be constructed of concrete.

Equipped with conducting tower, 14 ft. in diameter, a vertical conducting iron pipe, 22 in. in diameter, and a flushing pipe, 30 in. in diameter.

The above-mentioned plan aims at raising the supply capacity to sufficient for 150,000 people. According to this plan the daily supply of 15,000 tons of water may be kept up for 260 days.

Of the total outlay, Y420,000 is set aside for the reconstruction of the dam, the rest being intended for the conducting pipes, the installations at the water-source, etc.

The construction of the light rail line for the transportation of building materials is expected to be finished shortly. The excavation of the foundation of the dam is now in progress.

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